



THE RESOURCE FOR INFORMATION EXECUTIVES

THE PERFECT ORDER

Supply Chains With
No Delays » No Inventory » No Waste
No Problems Page 38

BY SUSANNAH PATTON

"As you improve your perfect order rate, you squeeze losses—such as extra inventory and wrong quantities shipped—out of the system," says **Patrick Arlequeeuw** (right), VP of the global supply network at P&G.

GRID COMPUTING HELD HOSTAGE

Why vendors aren't building grid applications
Page 60

I.T. TURNAROUND RULES

Six tips for when things need to change—fast
Page 54

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Larry Smith,
West Marine's senior
VP of planning and
replenishment, says
the boating company
was able to improve
its in-stock rates
by providing demand
forecasts to its suppliers.

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Supply Chain

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Achieving the Holy Grail of "perfect orders" involves more than just plugging data into software. Companies must also restructure their supply chain processes from end to end. **Feature by Susannah Patton**

TOP 25 SUPPLY CHAINS | CIO.COM

Analyst AMR Research recently ranked the world's top supply chains. To read its full report and get the complete list of top supply chain companies, go to www.cio.com/080105 to find the link to **The AMR Research Supply Chain Top 25.**

COVER PHOTO BY STEPHEN WEBSTER

Career Development

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Six ground rules for successful coaching engagements. **Column by Susan Cramm**

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Once you've learned all you can from your executive coach, put your new skills to work in a new job. Check out our online job listings. Go to www.cio.com/080105 to find the link to **CIO Wanted.**

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To avoid extinction, CIOs must move from an orientation that revolves around technology to one centered on business processes. **Column by Michael Hammer**

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Turnaround CIOs are in demand. Here are the six steps for righting a troubled IT ship. **Feature by Allan Holmes**

THE CIO LEADERSHIP RESOURCE CENTER | CIO.COM

Being a great leader isn't just about mastering management skills. It's also about selling IT value to your colleagues, creating effective budgets and claiming that executive title. Find out what you need to know at the CIO Leadership Resource Center at www.cio.com/leadership.

more »

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"Grid is one of the things that differentiates us," says Genworth Financial CIO **Scott McKay**.

New Technology

THE ADVANTAGES OF WORKING DANGEROUSLY | 46

Early adopters of new IT and customers of startup vendors can win competitive advantage and other treasures, but only if they look before they leap. **Feature by Christopher Lindquist**

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You need grid computing. It could save you millions. It could provide competitive advantage to your business. But to get it, you have to build it yourself. Why? Ask your vendors.

Feature by Thomas Wailgum

DEEP BACKGROUND ON GRID | CIO.COM

Check out the **Grid Checklist** by Ian Foster, the father of grid computing. Also, read the paper written by Foster and others that defines the **Anatomy of the Grid**. Find the links online at www.cio.com/080105.

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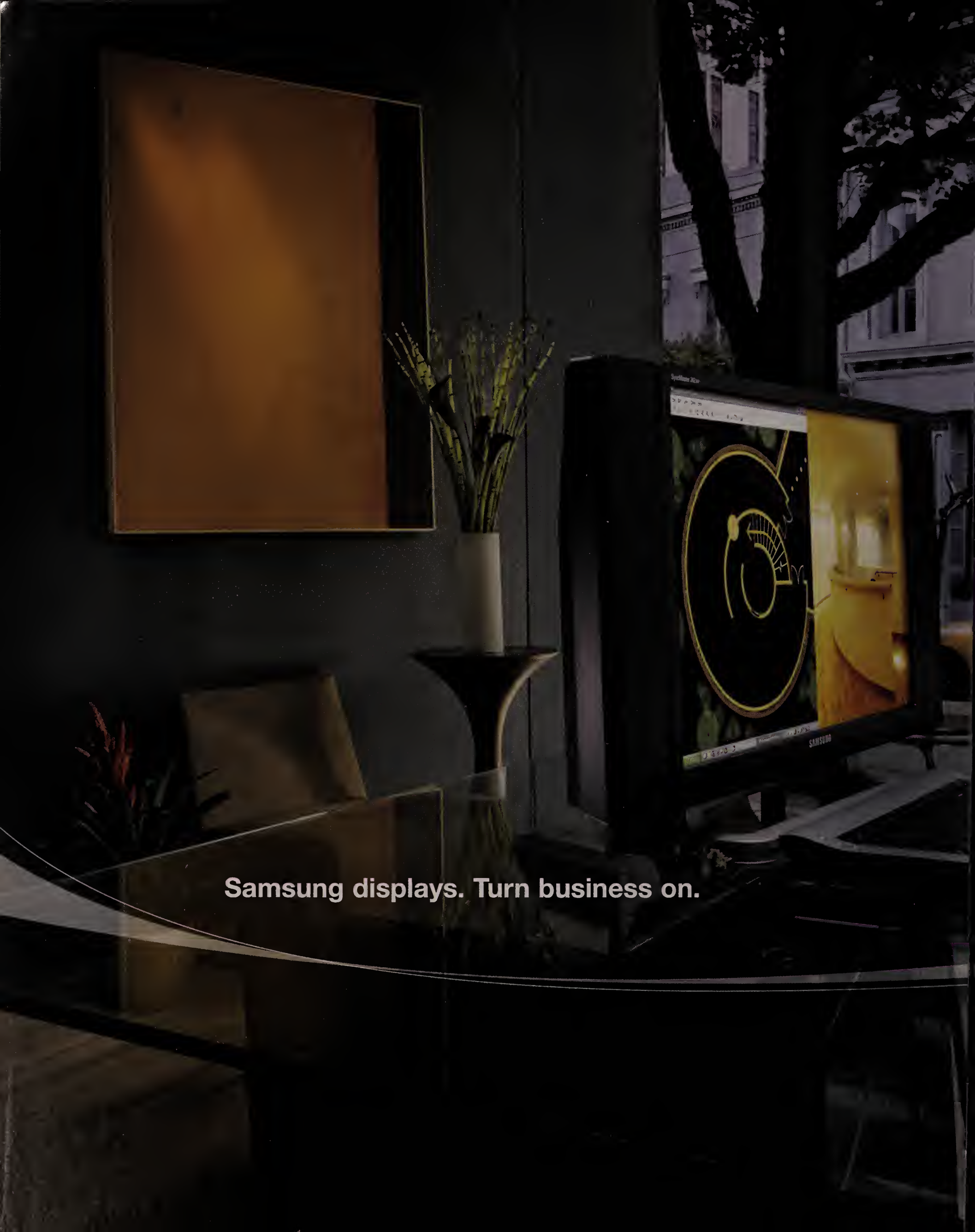
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InBox



The FBI Needs Leaders

I wish Mr. Azmi well, although I have my doubts about how effective the final system will be ["Why the G-Men Aren't IT Men," June 15]. The FBI, just like the U.S. Attorneys' Office, is more concerned about what the troops will salute than what is the best and most efficient system. I think that the most effective CIO—one who would finally get the support he or she needs from Director Mueller—would be one from private industry.

In a private company, every business decision (cost) is weighed against the return. This "feels good and the gang will like it" doesn't get much funding in the private sector. The FBI's ROI is in catching and prosecuting the bad guys. In the private sector, we have to part company with those who refuse to embrace change.

Agents need leaders, not politicians. Agents need tools that are easy to use and do the job, not fancy systems that require 120 hours of training. No wonder the FBI can't keep any good help.

ANONYMOUS
VP of Information Systems

A New Way of Approaching IT
Very interesting reading. ["Turning IT Doubters into True Believers," June 1]

seems to repeat itself the world over, which makes one wonder whether the IT chiefs of yesteryear were noncommunicative about business value, or whether today's expectations have changed, thereby requiring a different set of rules to manage and communicate what IT delivers.

With almost every industry under pressure to do more with less, the cycle of IT-driven innovation is under pressure. Many companies spend 60 percent to 90 percent of their budgets managing and maintaining the status quo—that is, ensuring that the systems they have deployed continue to work. Thus, budgets available for new projects are shrinking.

Since your perception is my reality (as I tell my business users), the change in perception needs to be on the forefront of every CIO's agenda. Active, fact-based communication is one of the main drivers—apart from having the IT folks move away from their computers and into the battlefield with the users—to creating the sense of empathy that is required to tilt the balance from negative to positive.

ARUN GUPTA
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I would suggest that there is no such thing as an IT project (excluding the basics such as regular technology maintenance). Any project or initiative should have a specific business purpose, and therefore be acknowledged as a business project and led by someone outside of IT.

Within business projects, there is often an IT component, such as implementing or enhancing a required piece of technology or software, but that is it. This is not to say the IT component isn't critical; often it is. Technology does not, however,

exist for technology's sake—or at least it shouldn't. It should always be driven by a business need. An IT project manager should lead the specific component of the project as it relates to technology, not the entire project.

Failure to recognize this is the arrogance that many in our industry still have yet to come to terms with. The article constantly refers to IT projects, which tells me that the author is still living in the old paradigm.

DON CRAWLEY
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BI Success Depends On Flexible Organization

I enjoyed "The Brain Behind the Big, Bad Burger" [March 15]. With my experience at a consultancy providing business intelligence (BI) solutions to primarily the life sciences, retail and manufacturing industries, it was refreshing to see the restaurant industry having immediate success from BI initiatives.

I would add another obstacle to the list presented in the article—the realization and acceptance that technology alone cannot solve any BI undertaking. No matter how sophisticated the technology tool is, the organization must be willing to change the internal structure and processes to fully leverage the new system.

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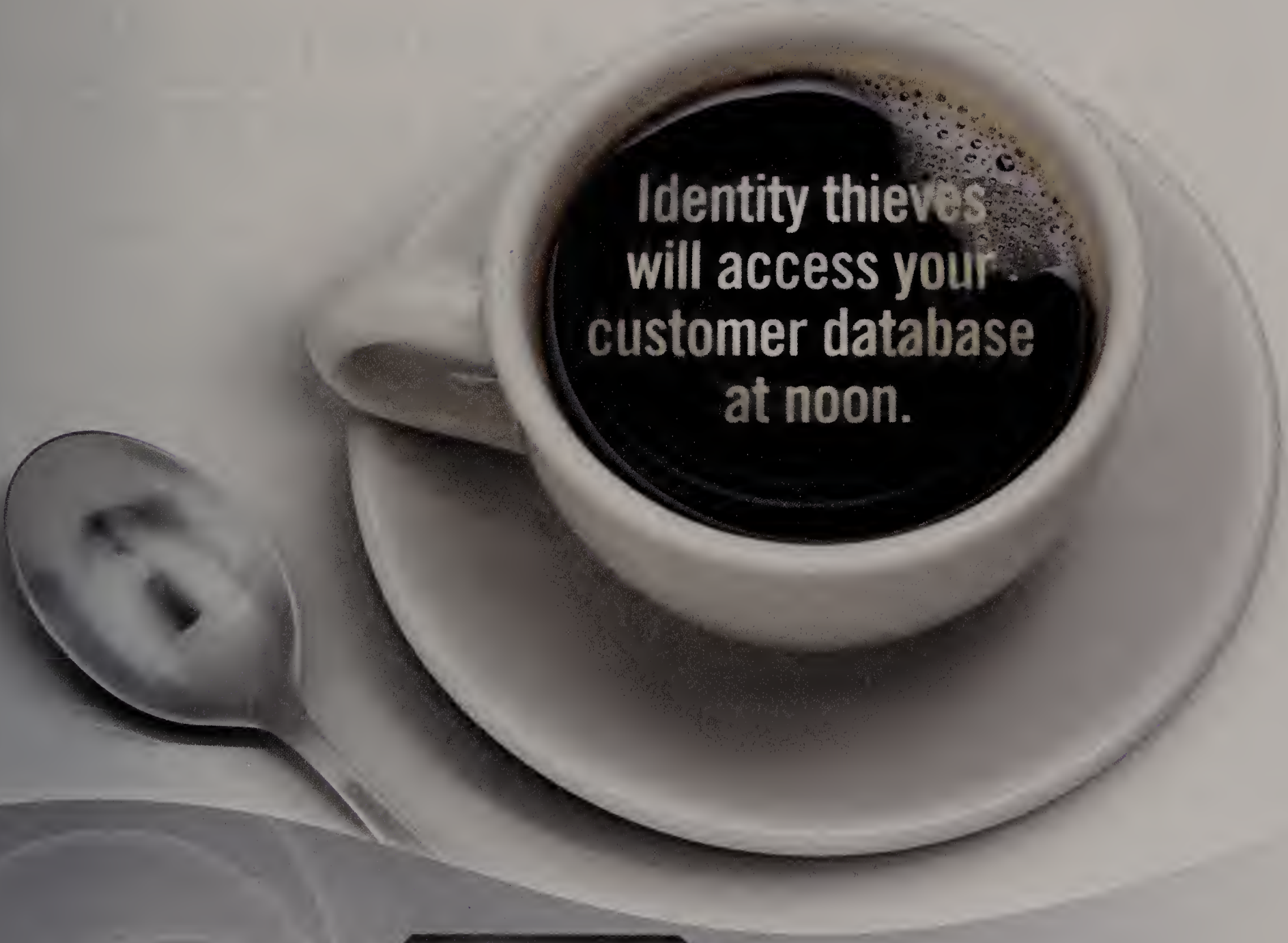
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trendlines

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NEW * HOT * UNEXPECTED

An End to Medical Forms?

HEALTH CARE You enter the doctor's office and sit down. Before you have time to reach for that tattered copy of *People*, the receptionist hands you the familiar clipboard. But instead of filling in the multipage form, you pull out a printout of your own per-

sonal health record and hand it in. That's the vision of Dr. Edward Fotsch, CEO of Medem. Fotsch wants patients to keep all their medical information online using iHealthRecord, a new service that Medem (a joint venture of the American Medical Association and six other medical societies) introduced in May. In addition to eliminating the pesky chore of filling out patient information forms, iHealthRecord's goal is to help patients keep track of their medical conditions, medications, insurance and emergency contacts, even as they change jobs and doctors.

More than 100,000 doctors across the country are offering iHealthRecord to patients, and in many cases, patients are asking their doctors to sign on, says Fotsch. "There is an increasing awareness among doctors that patients want services that give them control over their health information," he says.

The move to put personal health records online is part of the national push toward electronic medical records (EMRs), which many in the industry believe can reduce medical errors as well as

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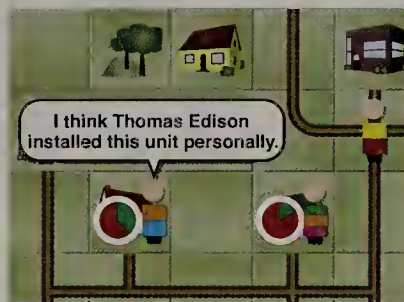
Walk a Virtual Mile in the Dispatcher's Shoes

CUSTOMER SERVICE

Dispatching technicians for service calls—how hard can that be? You send the first technician to the first call, the second to the next and so forth, until everyone's out in the field. Then you cycle through them again. No sweat.

Well, try playing a round of *Service Tycoon*, and get a clue. Developed by ClickSoftware, this free online game will convince you that dispatching field techs in that fashion is a sure-fire way to alienate customers

and put you over budget. At first, calls come in at a manageable pace and you can easily dispatch technicians with the appropriate qualifications. But suddenly you find yourself in fire-fighting mode: Everyone's out on a call and four customers are clamoring for service. The technicians who could handle their problems are far away, and there's no way you can get anyone there before customers lose patience. Your customer service score drops precipitously,



ClickSoftware's *Service Tycoon* game: fun with logistics.

costs rise, and you're suddenly glad you're not a dispatcher.

"People don't really relate to how difficult the problem is," says David Schapiro, executive vice president of markets and

products for ClickSoftware, which sells—no surprise—workforce and service optimization software. So Schapiro and marketing colleague Amit Bendov hit on the idea of developing a digital game to increase awareness among companies with field service technicians. In less than two months, more than 10,000 people have played the game.

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—Alice Dragoon

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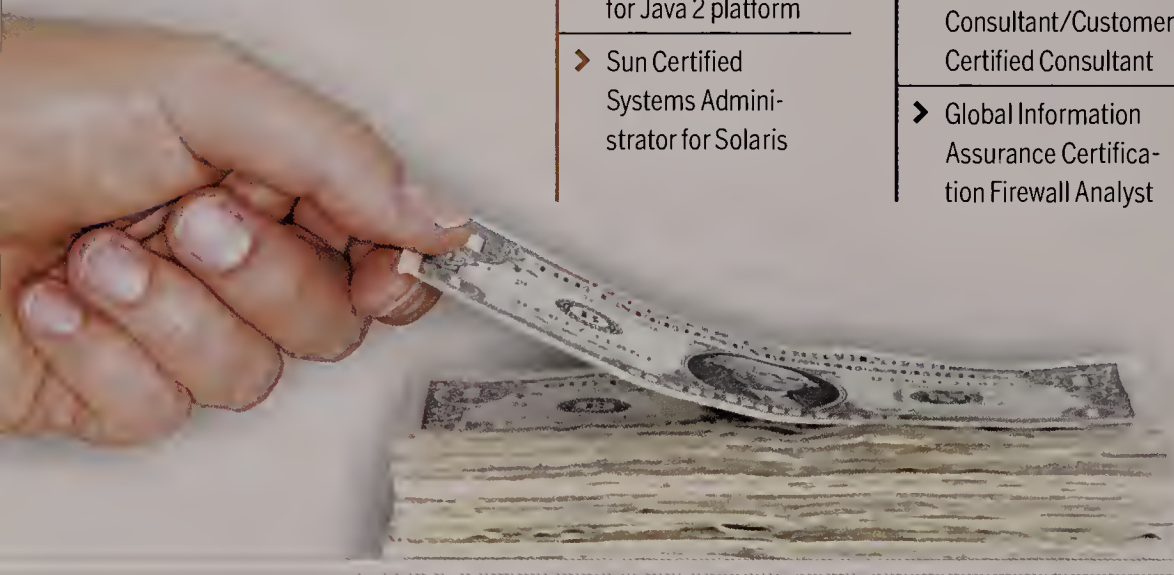
A survey of 48,000 IT workers on compensation, published in June by IT consultancy Foote Partners, finds that pay is rising for employees with application development, networking, messaging, database and systems administration know-how, and falling for those with skills in HTTP and HTML, among others.

HOT

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- Microsoft .Net
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- Certified Information Systems Auditor
- HP/Compaq Accredited (and Master Accredited) Systems Engineer
- Sun Certified Enterprise Architect/Certified Programmer for Java 2 platform
- Sun Certified Systems Administrator for Solaris

NOT

- Powerbuilder
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- Webmaster and Internet certifications
- HTML
- Beginner certifications (for instance, Microsoft Certified Professional)
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The Threat From Within

SECURITY Even the best virus protection and network security won't shield your company from a virus if one of your employees downloads it intentionally. While any company can be the target of internal sabotage, a recent survey of security and HR execs by risk management consultancy Risk Control Strategies shows that companies with between 500 and 900 employees

are the most at risk: twenty-three percent of those companies have been victimized by internal sabotage through virus downloads in the past two years.

But even if you pull a Trump and fire troublesome employees, the threat won't go away. According to a recent study by the U.S. Secret Service and CERT, which analyzed 49 cases of insider computer sabotage, most incidents were carried out via remote access, and less than half of the saboteurs had authorized access at the time of the incident. The report concludes: "The power of a terminated employee with system administrator access should not be underestimated." —Thomas Wailgum

Medical Forms

Continued from Page 19

health-care costs. But so far, only one-third of large medical practices—and even fewer smaller and solo practices—have switched from paper forms to EMRs. iHealthRecord can help doctors' offices make the transition to a full-fledged EMR system by providing online patient data ready for transfer.

Although individuals can sign up for iHealthRecord on their own, San Francisco-based Brown & Toland Medical Group, which is rolling out an EMR system to its 1,500 physicians, is offering the service to its patients and doctors. So far, the independent practice association has seen strong interest from both groups, says Nancy Griest, vice president of medical group services. Patients want to consolidate their own medical information for convenience, Griest says, but they also see the value of consolidation when a family member has a health emergency. For example, a wife could provide the password to her husband's medical record if he were being treated in an out-of-town emergency room. Doctors see the advantage of being able to quickly review what medications a patient has taken and what treatments he's received in the past.

The iHealthRecord service is free to patients, who log on with a user name and password. Patients control which doctors and family members have access to their record, and they also receive e-mail alerts about such things as FDA warnings on medications. Doctors pay an average of \$25 a month for the service, which can also include doctor-patient e-mailing capabilities and websites for their practices.

It remains to be seen, however, whether iHealthRecord and services like it can reassure patients who are nervous about maintaining the privacy of their health information on the Internet. Emily Stewart, a policy analyst with the nonprofit Health Privacy Project, points out that websites such as iHealthRecord, aren't subject to federal patient privacy guidelines.

Medem's Fotsch acknowledges that patients are rightly concerned that personal health information be kept private from prying bosses or insurance companies. But, he says, iHealthRecord follows HIPAA guidelines for patient privacy by not using or disclosing a patient's health-care information without permission. What's more, he says, patients will be alerted upon log-on if anyone has accessed their records. A separate nonprofit entity, iHealth Alliance, will oversee annual security audits, and Medem says it has no plans to sell the personal data.

—Susannah Patton

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Innovation is at the heart of BMW, which is why they partnered with Sprint to help roll out the all-new 3 Series in a way that was as innovative as the car itself. Together, they introduced wireless kiosks to find hard-to-reach, first-time buyers in unexpected places. Powered by Sprint PCS Connection Cards,[™] these kiosks let potential customers experience and interact with BMW, then instantly relay their contact information to dealers through a centralized server. This enables BMW not only to collect and process new customer leads but also push content updates to each kiosk without a site visit. So maintenance becomes more efficient, and downtime is reduced. And to date, Sprint has helped generate more than 56,000 leads for BMW. With Sprint, more people experience BMW, and more cars roll off the line. Engineering a new way to drive sales – now, that's beautiful.

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Why IT Leaders Fail

MANAGEMENT REPORT The nature of leadership is a subject of eternal debate, but there's no mystery why leaders fail, according to a recent study from the Cutter Consortium consultancy. It comes down to a basic inability to connect with and get along with other people.

"Why IT Leadership Fails," released in May, surveyed nearly 250 senior IT people, most of whom manage at least 10 staffers and have received leader-

ship training. They were asked to describe, in their own words, the worst manager they had ever worked for. The report authors, Cutter senior consultants David Caruso and Kerry Gentry, categorized the responses into 29 causes of leadership failure. These ranged from innate weaknesses (for instance, lack of intelligence) to skill deficiencies (such as lack of organizational or political skills).

A few of the survey respondents singled out low intelligence as the cause of leadership failure. Weak management fundamentals, including unreliability, inability to manage resources and lack of planning also received some votes. But the biggest reasons cited were an absence of so-called soft skills: Fifty-eight percent chose lack of empathy, 55 percent selected lack of emotional ability, and 53 percent cited inability to connect with others.

The survey also addressed the issue of leadership failure from another angle, asking respondents to choose from a list of 17 factors to describe why they believed leaders had failed. The top two "failure factors" were poor interpersonal skills, cited by 58 percent, and self-centeredness, chosen by 56 percent (see "Failure Factors").

In sum, the main cause of leadership failure is a lack of emotional intelligence. The authors' solution for avoiding failure is straightforward but not appealing for would-be leaders who lack soft skills. Because emotional ability and interpersonal skills are not easily learned, Caruso (a management psychologist who has developed an emotional intelligence test) and Gentry recommend that companies screen for people who have those abilities—and keep those who don't off the leadership track.

—Edward Prewitt

Failure Factors

The top five contributors to leadership failure

POOR INTERPERSONAL SKILLS
58%

SELF-CENTEREDNESS
56%

FAILURE TO ACKNOWLEDGE PROBLEMS
55%

UNTRUSTWORTHINESS
54%

WEAK MANAGEMENT SKILLS
52%

Source: Cutter Consortium

TRENDLINES



Techno Poetry

COMMUNICATION "Chromium makes em'ralds green / And gives rubies their deep red / Nitrogen makes diamonds yellow / Boron makes them blue instead." It may not be Keats, but through his collection of poems and songs, MIT Senior Lecturer James D. Livingston, who teaches in the department of materials science and engineering at MIT, has found a way to

make complex scientific concepts less intimidating to nonexperts.

In his case, the neophytes are mostly freshmen. Livingston, a former research physicist with General Electric, wanted to make the transition from high school to college less difficult for these students by infusing an element of fun into his physics and chemistry classes and "lower[ing] the scare barrier."

Mnemonic devices became a tool for

Livingston to help his students remember the course material and feel more comfortable with difficult subject matter. Although a song may not be the ticket to explaining why the ERP system has crashed, Livingston's point—that it's a good idea to think outside the box when facing a communication barrier—shouldn't be lost on CIOs. Use humor, tell a story, write a poem, do whatever it takes, he says, to ease the tension and get them ready to listen to what you have to say. —Cassidy Healzer

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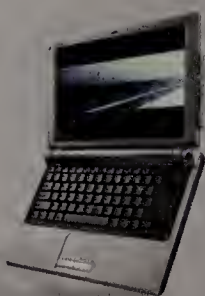
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VoIP Security Debate Heats Up

SECURITY Voice over IP (VoIP) telephony and malicious software for mobile devices are among the most-hyped IT security threats, according to Gartner.

Lawrence Orans, principal analyst at Gartner, and John Pescatore, vice president and Gartner fellow, say that while attacks on IP telephony and mobile devices may come eventually, vendors of security technologies and services have overblown the current danger of such attacks. They say businesspeople are worrying so much about overhyped threats that they're not deploying technologies that can help their companies, such as wireless LANs.

These worries are, for now, unfounded, says Orans. Since eavesdroppers need access to the corporate LAN, it's currently nearly impossible to eavesdrop on an IP telephone call without being inside of the building where the call is initiated or received. Meanwhile, says Pescatore, viruses and worms that attack smart phones and other mobile devices will have a limited impact because there is, as yet, no mobile operating system as dominant as Windows is for PCs.

The vendors beg to differ. Stan Quintana, vice president of managed security services for AT&T, says protecting VoIP networks is more complex than protecting data-only networks. Users of IP telephony need to secure not only their phones and IP servers, but also signaling and other voice equipment. Meanwhile, Vincent Weafer, senior director of Symantec Security Response, says that while mobile device security isn't a big issue now, his company is trying to educate users. "What we're trying to tell people is, if they're deploying these devices, they should deploy them in the right way," Weafer says.

—Grant Gross

CIOs' Stock Rising in Finance Industry

ON THE MOVE Glen Salow was named executive vice president of technologies and operations at Ameriprise Financial (formerly American Express Financial Advisors), which American Express spun off earlier this year. Most recently, Salow, 48, was AmEx's executive vice president and CIO. **Stephen Squeri**, 46, a 20-year AmEx veteran, succeeds Salow. Squeri was most recently president of the company's Global Commercial Card group.

W. Roy Dunbar, 44, president of global technology and operations with MasterCard, was



W. ROY DUNBAR

elected to the board of directors of health insurance provider Humana.

Elsewhere in the financial services sector, KeyCorp

appointed Georgia Pacific's CIO, **H. James Dallas**, to its board of directors, and securities trader Knight Capital Group added Sony Electronics' senior general manager and CIO, **James T. Milde**, to its board.

Travel CIOs Take Off

After 14 years with the travel, hospitality and real estate titan, **Mickey Lutz** left Cendant and joined a Silicon Valley startup. Most recently, Lutz was CIO for Global Agency Solutions with Cendant Travel Distribution Services. During his tenure, he also worked with the Avis Group and Galileo (both of which are owned by Cendant) and PHH, which the company spun off earlier this year.

Mike Kistner checked out as CIO and senior vice president of distribution with Best Western



MIKE KISTNER

after more than four years with the hotel chain. He has joined Pegasus Solutions as

the IT services provider's senior vice president of service delivery and operations. Kistner was a member of Pegasus's board in the mid-'90s when he worked for Super 8 Motels as an executive vice president.

Scott Gibson, a 20-year veteran of the hospitality industry, has replaced Kistner at Best Western. Most recently, Gibson was senior vice president and CIO at Kerzner International Resorts.

A New Face in Apparel

Michael Saunders has joined Kellwood as CIO. The \$2.5 billion company markets clothes for such brands as Calvin Klein, Nautica, Ralph Lauren and Liz Claiborne.

In related news, Liz Claiborne has expanded the role of its CIO,



JOHN SULLIVAN

John Sullivan, as part of an organizational realignment. Sullivan adds the responsibility for sourcing

supplies such as fabric to his portfolio, which includes customer service. His new title is senior vice president of sourcing, service and systems.

—Meridith Levinson

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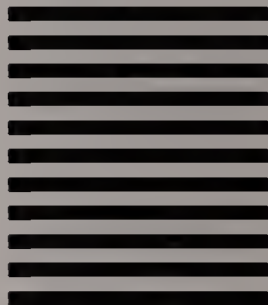
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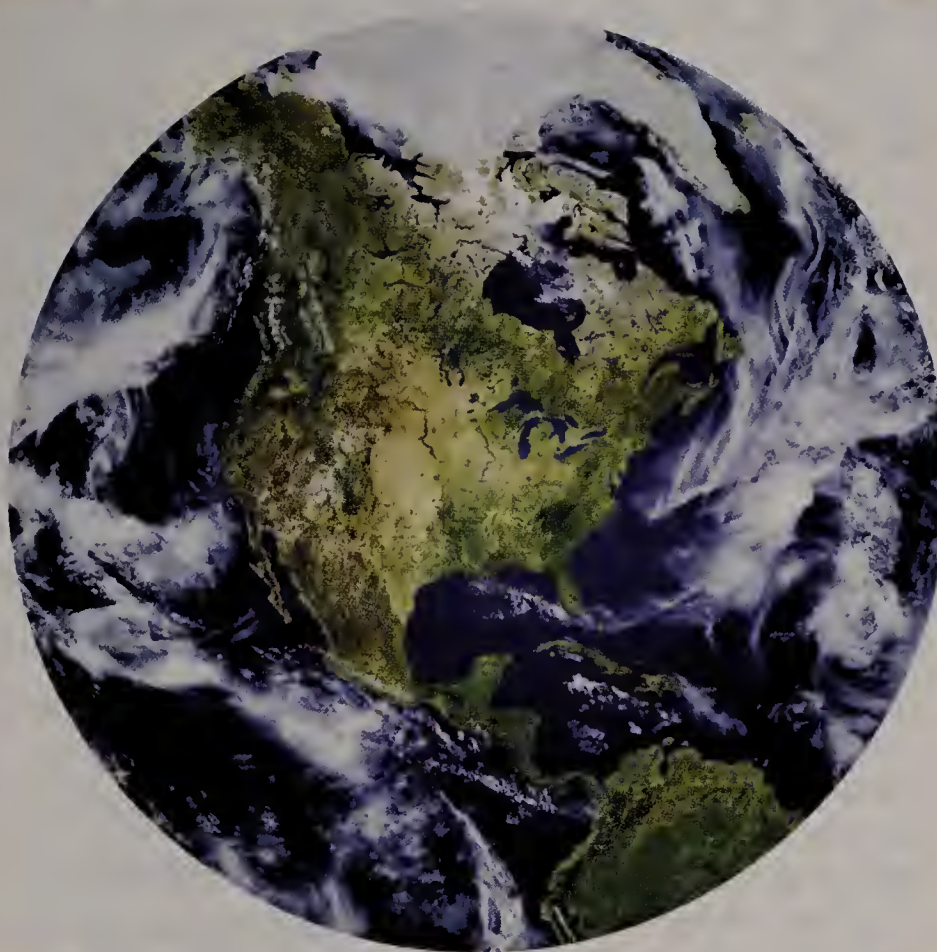
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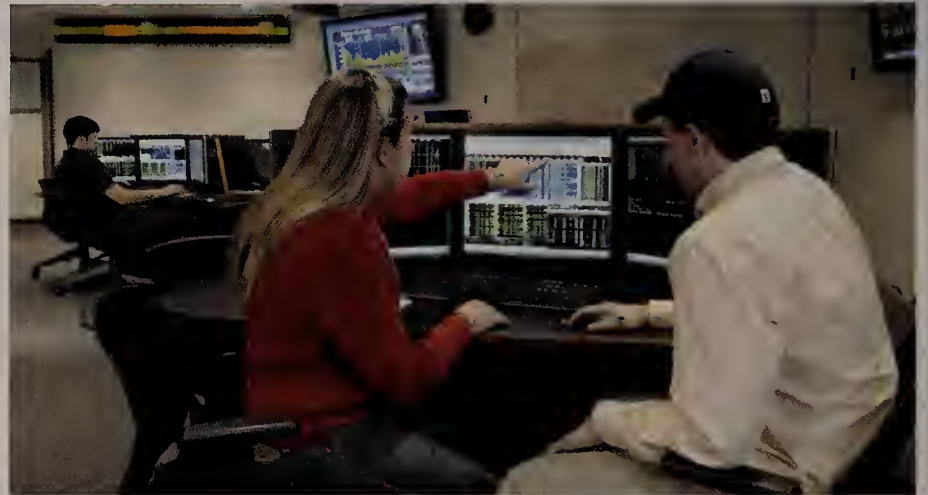
EDUCATION The summer internship is the traditional way that university students get work experience. But at Villanova University, students studying for finance, business and nursing degrees can also learn about the real world through class work that incorporates the same software applications used in those professions.

While most business schools offer course work that covers IT, classroom experience with applications they will encounter on the job is less common, says Mike Zastrocky, vice president of academic strategies at Gartner. It may be even rarer in disciplines such as nursing where use of IT is relatively new, says Stephen Fugale, Villanova's CIO.

In January, Villanova opened its Applied Finance Lab where finance and MBA students are able to test the theories they are learning by analyzing real-time market data and simulating investment and trading transactions. "We try to replicate all the technologies a trader, broker and investment banker would have access to," says Fugale.

The finance lab has four pods, each with access to trading systems and analytic tools such as Bloomberg, Compustat and Reuters.

Fugale is finalizing plans with the Philadelphia Stock Exchange to connect to the exchange's back-end trading and reconciliation systems, enabling students to see the



Business students in **VILLANOVA'S APPLIED FINANCE LAB** test the theories they have learned in the classroom using trading systems and analytic tools.

entire lifecycle of a trade—from researching it to clearing it and monitoring a portfolio.

Meanwhile, students in majors such as marketing, finance, operations and management are being schooled in CRM and ERP. Villanova runs

an SAP system, which professors and system experts demonstrate to students to give them a greater understanding of how such systems operate in companies. Marketing and operations students get hands-on exposure to SAP as part of their course work.

Gartner's Zastrocky says few programs such as Villanova's exist because there aren't many professors, at least in business schools, who have used the applications themselves.

In the nursing school, students learn several applications that they will use in hospitals during internships or after graduation. For instance, PDAs used in the program run clinical applications that, among other purposes, teach undergrads about drug databases.

Fugale notes that the point is to offer students a way to understand the critical role IT plays in their future profession. "It's all about how we can differentiate our students, and how we can best prepare them," he says.

—Thomas Wailgum

LESSONS FROM THE IPOD

MOBILE TECHNOLOGY

For college students, the must-have gadget for the upcoming fall semester continues to be the Apple iPod. At Duke University, administrators are reassessing how best to use the devices as educational tools. After an exper-

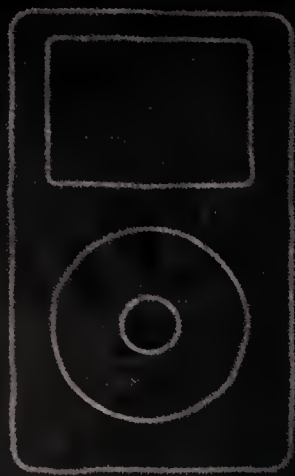
iment last year that involved giving all 1,650 incoming freshmen iPods (see "Welcome Freshmen: Have an iPod" at www.cio.com/080105), Duke has decided to distribute the devices more selectively.

To get an iPod from Duke for the upcoming year, students have to enroll in a course for which faculty members have requested the device. "We are encouraging faculty to think of creative uses," says Tracy Futhey, Duke's vice president of IT and CIO.

According to Futhey, the devices proved useful in five

areas, including as a study tool for repeated listening to audio (such as lectures), and for a variety of recording uses (for instance, making research notes). But faculty who taught courses available to upperclassmen couldn't build the use of iPods into their course plans because there was no assurance that students other than freshmen who enrolled would have one.

In April, Duke Provost Peter Lange announced the Duke Digital Initiative, an effort designed to support technology innovation in the classroom. As part of the program, Duke will expand its support to other technologies—including digital video cameras and tablet PCs. Lange invited faculty members to submit proposals to Duke's Center for Instructional Technology for implementing such devices; as with the iPods, it will be the job of the center and Duke's Office of Information Technology to evaluate the proposals and distribute technology as warranted. —Megan Santosus



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Insider's Guide to Executive Coaching

Six ground rules for successful coaching engagements



While most people have heard of executive coaching, few have personal experience working with a coach. Here's my view of the profession and process from seven years of working as an executive coach.

Truth be told, I was asked to be a coach before I knew what one was. Fortunately my ignorance wasn't career-limiting, because no one else knew either. Over the past 15 years or so, executive coaching has emerged as a practice and is making a real difference in the lives, careers and businesses of many.

There are plenty of references that describe the various types of executive coaching, the benefits, and the ideal approach to selecting and working with a coach (for example, "The Wild West of Executive Coaching," *Harvard Business Review*). But I find that the literature falls short when it comes to disclosing the caveat emptor realities of executive coaching. If you are thinking about investing in executive coaching services, keep the following in mind.

■ **COACHING IS OPTIONAL.** You cannot force someone to participate in coaching. I have a client who wants me to work with one of his direct reports, but that person is not interested. In fact, the only thing the direct report is interested in developing is his golf game. While it might be possible for me to sell him on the benefits of coaching, it is ethically important that I pull back: A coach can't change someone who is not interested in changing himself.

■ **COACHING RELATIONSHIPS ARE LONG-TERM.** Once someone clicks with a coach, she is likely to stay with that coach, in some capacity or another, over the long haul. The initial relationship will be the most intense. With the foundation built, subsequent interventions will be targeted and efficient. Just as



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with a well-loved doctor or mentor, it doesn't make sense to discontinue a relationship that continues to be useful. Senior managers who benefit from coaching and have their own budgets will find some way to pay for it, even if it's not within company policy.

■ **COACHES WORK FOR THE CLIENT.** My client's interests trump those of his supervisor or company—regardless of who is paying the bill. Managers have input on the expected outcomes, but they cannot control the process or determine how their subordinates define success. I have a client who wants to start his own business in five years, and his motivation to change is driven by this objective. As a coach, I must respect this objective and help him move toward his goal.

Even in this type of situation, however, there's no conflict of interest 99 percent of the time, because the resulting behavior changes will benefit the company, thereby enhancing my client's career prospects there and increasing the likelihood that he will remain with the company.

■ **COACHING FOCUSES ON THE SOFT STUFF.** The hard business issues—such as organization, strategy, measurement targets, processes and road maps—are the easy stuff of coaching. Ultimate success lies in the more difficult work of shoring up, mitigating or leveraging soft skills—including the ability to assign the right people to the right roles, gain commitment to a strategy, develop strong relationships, communicate effectively, manage up and delegate. Recognize that better soft stuff will lead to the right hard stuff, and give the coach room to work on both.

■ **COACHES MUST DELIVER.** Executive coaches are sometimes called "performance coaches"—a term I love. I agree that "coaching that focuses on business performance is key to improvement in executive performance" (from "Coaching: No More Mr. Nice Guy," *Gallup Management Journal*). It is essential that coaching goals include the "what" of quantitative business improvement (for example, project success) as well as the "how" of qualitative behavior changes (such as stakeholder alignment). Coaching should be guided by business needs, fueled by proven business theory and practices, and grounded in the work that is on the client's desk. The best coaching engagements are iterative and require contracts that are short-term and measurement-focused.

■ **COACHES AREN'T NICE.** When someone hires a coach, she is agreeing to change. But because people like the idea of change better than the reality, the best coaches practice tough love. One of my clients tells me in the same breath how difficult and how beneficial coaching has been for him. Good coaching sessions are simultaneously stimulating and exhausting. Most clients look forward to the beginning and end of each session, but not to the hard work in between.

As with any profession, there are good and not-so-good executive coaches. If you decide to work with a coach, do your due diligence and manage the relationship as you would with any professional services provider. If you do so, you have a good shot at embarking on a business-building relationship.

Reader Q&A

Q: I believe your ground rules are more applicable when the coach is from outside, rather than within, the organization. How different is it when the coach and the coached are in the same company or even the same department?

A: Depending on your company, your internal coach may actually be more of a mentor—someone who serves as a sounding board with no specific performance objectives, agenda or approach. If you are, in fact, in an internal coaching relationship, then it is much more difficult to ensure impartiality and confidentiality—two elements that are critical to securing the trust that is so fundamental to productive coaching relationships. In addition, it may be much more difficult for the coach to be tough, given that the client is part of the same organizational community.

Q: What are your thoughts on the characteristics of the best coaches? Do you think someone with practical experience (such as yours) tends to make a better coach than someone without that experience?

A: The best coaches are teachers and counselors by nature. They care deeply about helping other people and are perceptive. They are able to form trusting relationships in which they can offer their knowledge and insights in ways that resonate with others. The background of a coach, from which he or she acquired skills and knowledge, is important depending on your needs and coaching objectives.

Q: How does one move into executive coaching? As a former CIO, management consultant and adjunct professor, I would enjoy helping folks become the next generation of CIOs.

Have a Leadership Question?

For more reader questions and answers from Susan Cramm, go online to www.cio.com/leadership.

CIO.COM

A: As with any career move, do your research, establish your qualifications and marketing pitch, and start networking. Good luck!

Q: I am recruiting online coaches and would like to learn of any qualifications to become an online coach, as well as the payment and pricing structures used in the industry.

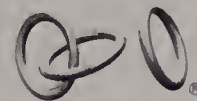
A: I don't know anything about online executive coaches, other than to say that online advice sites have been tried and haven't succeeded, to my knowledge. People like to get to know experts whom they pay, and that's hard to do on a website. **CIO**

Susan Cramm is founder and president of Valuedance, an executive coaching firm in San Clemente, Calif. E-mail feedback to susan@valuedance.com.



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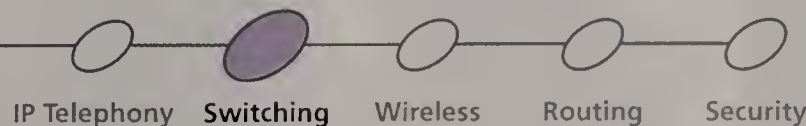
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CIO Evolution

To avoid extinction, CIOs must move from an orientation that revolves around technology to one centered on business processes



If Rip Van Winkle were a CIO, awoken today from a 20-year nap, he might not realize how long he'd been asleep by merely perusing IT management periodicals. The challenges that CIOs put on the top of their agendas in the 1980s—such as aligning IT with the business, partnering with operating managers and effective strategic planning—are the same ones they find most intractable today. It is enough to make one despair. Moreover, today's CIOs have to deal with outsourcing, an issue that was only beginning to surface two decades ago. Combine the challenge from outsourcers with the widespread availability of packaged software and the ever-increasing self-sufficiency of technologically savvy end users, and the classic CIO role (with the CIO being in charge of all IT) is under assault as never before.

The bad news is that this tendency will only accelerate. CIOs who persist with the classic model of the technology organization are doomed to extinction. At best, they will play a marginal role in their enterprises. The good news is that new opportunities exist for CIOs and their staffs to make even greater contributions to their organizations. However, taking advantage of these opportunities will require a rethinking of the very nature of the IT organization. In essence, IT must move from an orientation around technology to one centered on business processes.

While the term "process" is widely used and misunderstood, it is in fact a simple notion: It refers to the small number of cross-functional sequences of activities that create all customer value. Order fulfillment (which begins with receipt of an order and ends when payment has been received), procurement, product development, demand creation, order acquisition and post-

sales support are typical processes. These processes do not show up anywhere on a conventional organization chart, which, at most, is a representation of the personnel in the enterprise, not its work. But processes are nonetheless very real and present in every enterprise.

Heretofore, processes have largely been ignored, as managers focused on narrow functional silos. But over the past 15 years, processes have begun to move front and center in companies' programs to improve operating performance. Processes are the underpinning of Six Sigma and other quality programs, providing the context for identifying and resolving persistent execution problems. Processes underlie a new generation of measurement systems that offer a customer-centered perspective on organizational performance, emphasizing customer satisfaction rather than just financial results. End-to-end process redesign enables breakthrough performance improvement by eliminating unproductive, non-value-adding activities. All of these themes and more are brought together under the heading of process management, in which end-to-end processes are actively measured, improved and redesigned on an ongoing basis.

IT encountered processes when implementing integrated software such as ERP. The notorious difficulties that some organizations experienced with such software can be traced to the fact that ERP modules share a common database and interface with each other; in other words, ERP systems, at their heart, support cross-functional processes. Companies that attempted to install ERP encountered grave difficulties, for they were unprepared for the shifts in jobs and power that focusing on end-to-end processes entailed. Companies that managed their installation in terms of process change rather than software were far more successful.

IT's New Role

The process concept has now become the underpinning of a whole series of managerial innovations that are transforming how enterprises are organized, managed and operated. There are many ways for IT organizations to be part of this shift in focus. For instance, consider the evolution of IT at IBM. While much has been written about IBM's revitalization under Lou Gerstner, one critical and underreported aspect of this turnaround was the transformation of IBM's operations through process redesign. The IT organization at IBM played a central role in this transformation and continues to do so. To understand how, consider Joan Kennedy, whose title is vice president of value chain fulfillment in the software group at IBM. (This is the multibillion-dollar business unit responsible for IBM's software products.) Value chain fulfillment covers all

IT executives have the expertise needed to ensure that process-change projects are effectively designed and managed.

the work needed to obtain and fill customer orders for software products. Joan's responsibility is the design, support and improvement of this process on an ongoing basis; she is what is called in process parlance the "process owner." She does not have direct responsibility for the people who actually perform the work of order fulfillment. They do not report to her and indeed are not even located in the software group. They are to be found in a shared-services unit with people performing similar work for other IBM groups. But Joan is responsible for designing how the order fillers do their work and providing them with the tools they need. She and her staff are continually looking for ways to improve the performance of the process, through changes in its design and the development of enhanced tools, including information systems.

Chief Process Officer

The most remarkable thing about Joan's job is that she resides in what passes for an IT organization at IBM. Her boss, Lynn Potter, is technically called the business transformation executive (BTE) for the software group, and she occupies the slot that a CIO would have if there were one. (There are individuals with the same role in other IBM business units.) The BTE's role is to "define and implement the business unit's transformation strategy, identify and prioritize transformation initiatives, implement end-to-end processes, define IT requirements" and the like. In other words, the BTE is a business change manager who happens to tend to IT issues as well. Managing IT for the software group comes under the BTE's purview, but it does not define the BTE's role.

The BTE's mission is not technology management per se, but technology-enabled, process-centered business performance improvement. The bulk of the hard-core technology management for IBM has been outsourced to another part of IBM that manages technology for customers as well as for internal units such as the software group. Joan and the other process owners are focused on improving their individual processes. They employ a structured methodology for identifying improvements and then organizing and managing project teams to implement them. Most (but not all) of their

projects entail the deployment of information systems. The BTE's role is to ensure that the work of all the process owners fits into an integrated strategy and that the technology infrastructure meets their needs. The corporate IBM CIO has a similar role, ensuring that the process-related projects in all of the business units are integrated into a coherent program for improving IBM's operating performance.

IBM is far from alone in shifting the focus of its IT organization from technology to process. At dozens of other progressive companies, the CIO is at least as focused on processes as on technology. For instance, Bruce Goodman is the IT chief of Humana, the \$13 billion health insurer, but he is also far more than that. He began by expanding his mandate from merely providing the systems that support processes to helping define and design the processes themselves. The process owners for some of the more technology-intensive processes work for him, just as they do for his BTE counterpart at IBM. But Humana has gone one step further. Not only does Bruce's organization own the process called "enrolling, guiding and servicing customers" (essentially customer service) but the thousands of people who work in that process are located within Bruce's organization as well. It is natural, therefore, although uncommon, that Bruce's full title is chief service and information officer.

IBM and Humana have in effect turned their chief information officers into chief process officers, senior executives responsible for supporting and coordinating the work of

Hark, the Business Process

Processes are the underpinning of Six Sigma and other quality programs, as well as a new generation of measurement systems. But now **the process concept** underlies a whole series of managerial innovations that are transforming how enterprises are organized, managed and operated. Have you succeeded in shifting the focus of your IT organization from technology to process? Share your tales of transformation on the online version of the article in the **ADD A COMMENT** box. Find the link at www.cio.com/080105.

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process owners across the enterprise. This is indeed a dramatic transformation, but not as far-fetched as it might initially seem. Process is a concept far more congenial to IT executives than to many of their counterparts, and many of the skills and capabilities present in an IT organization are as much about process as they are about technology. Many process change initiatives are dependent on tech-

nology, and IT executives have the expertise and experience needed to ensure that such systems-intensive projects are effectively specified, designed and managed.

Extreme Makeover

While IT does have some distinct advantages in the process domain, it suffers from some weaknesses as well. Too many IT professionals and managers are still inexperienced in change management, a discipline central to process management. They tend to be narrowly focused on the particular range of technologies with which they are familiar and overly attached to the

In a world in which technology is becoming a commodity, IT must transcend its traditional role and create its own future.

legacy systems that they developed and still maintain.

To succeed in a new role centered on processes, IT will have to change its style. Collegial, creative and flexible—rather than defensive, pedantic and rigid—will have to be the image that IT evokes in the enterprise. At IBM, the key word for the new IT organization is collaboration. Joan Kennedy works closely with her counterparts in the software group, with the unit managers whose people perform her processes, and with process owners in other business units. For IT managers accustomed to working in isolation, this collaborative style may come as a real shock.

The role of chief process officer is a critical one for enterprises, and some CIOs may encounter skepticism about their qualifications for assuming this position. IT executives are finding that an effective way to build credibility is by applying process techniques to the operation of their own organizations. An IT unit can in effect be viewed as a "business within the business," whose customers are its users. Taking this perspective, it is possible to identify a small set of value-creating processes that IT employs in its own work. One financial services company, for instance, has identified the following six processes in its IT unit: develop and maintain customer relationships, plan services, develop services, provide services, deploy services and maintain services. Plan services, for instance, encompasses activities such as strategy development, service assessment and valuation, operational planning, resource planning and portfolio management. By applying process redesign techniques to incident management (which is part of the maintain services process), the company experienced a major improvement in first-call resolution while reducing the cost of operations.

Recognizing that transforming processes rather than installing technology is the real route to improved performance: These are the ways in which IT can transcend its traditional role and create its own future. The transition will not be easy, but the opportunities and payoffs are enormous. Moreover, there may be little alternative in a world in which technology is becoming a commodity. The age of technology is giving way to the age of process. **CIO**

Michael Hammer is president of Hammer and Co., an education and research company focusing on process management and innovation. He is the author of four books, including *Reengineering the Corporation*. He can be reached at michael_hammer@hammerandco.com.



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THE PERFECT ORDER

Achieving the Holy Grail of “perfect orders” involves more than just plugging data into software. Companies must also restructure their **supply chain** processes from end to end.

BY SUSANNAH PATTON

In late 2003, Qualcomm’s CIO Norm Fjeldheim started seeing signs that the demand for cellular phone chips was rising much faster than expected. Consumers around the world were snatching up cell phones at an unprecedented rate, and manufacturers of the popular handsets were scrambling for more chips. For Qualcomm, which sells chips to the cellular industry, the unexpected cell phone frenzy hit its supply chain where it was most vulnerable. “Our customers were not getting everything they asked for,” says Fjeldheim, noting that demand for

PHOTO BY STEPHEN WEBSTER



PATRICK ARLEQUEEUW,
VP of the global supply net-
work at P&G, is working to
give suppliers better access to
production data so that they
can deliver raw materials to
P&G on a real-time basis.

Reader ROI

- :: What it takes to achieve high order-fulfillment rates
- :: How to restructure your supply chain to get there
- :: What to do when the costs outweigh the benefits

the chips rose 37 percent in one year. "We could not increase our supply, and some deliveries just weren't possible."

Out of stock. Whether referring to semiconductor chips or potato chips, these are dreaded words for those in charge of far-flung and increasingly complex supply chains. In Qualcomm's case, the company not only missed an opportunity to significantly boost revenue but also was forced to reevaluate the way it did business.

Since that period of panic (which lasted for most of 2004), Fjeldheim and his colleagues at Qualcomm have reorganized the supply chain so that they won't get caught by surprise again. Company officials are bringing supply chain, finance, IT, and sales and marketing together for regular demand-planning sessions. And the company is trying to increase the flexibility of its supply chain by working with multiple suppliers, rather than single suppliers, to build a set of chips. It has also started sharing more information (via Web connections and file downloads) with its 10 chip makers. Should there be another unforeseen spike in demand, Qualcomm will be better able to shift production back and forth between suppliers, if necessary. So far, Qualcomm, which ships 140 million chips per year to cell phone manufacturers such as Samsung and Motorola, has improved its on-time product delivery rate—which had fallen below the 90 percent level during the chip shortage—to 96 percent, a high rate in an industry grappling with shorter lead times for its products than many other manufacturers.

AMR Research says the payoff for companies with high rates of "perfect orders"—those that are complete, in the right place, undamaged and on-time—can be substantial. AMR recently ranked the world's top supply chains (see "Top 10 Supply Chains," this page). Companies that ranked high—such as Dell, Nokia and Procter & Gamble—carry less inventory, have shorter cash-to-cash cycle times and are more profitable. A 3 percent improvement in perfect order fulfillment translates to a 1 percent increase in profits, AMR says, while a 10 percent increase means an additional 50 cents in earnings per share. (Qualcomm, with revenue of \$4.9 billion in 2004, is too small to make it onto AMR's list, but the company qualifies as a top supply chain because of its ability to effectively collaborate with handset makers and cell phone service providers, says Kevin O'Marah, a supply chain analyst at AMR.)

To get to this Holy Grail of order fulfillment, however, takes more than plugging data into software programs. In fact, companies that want to achieve and then maintain high perfect order rates may have to restructure their supply chain processes from end to end. They have to build systems that connect them in real-time to both suppliers and customers, thus enabling the development of tighter relationships with both parties. They have to feed information from

Top 10 Supply Chains

AMR Research recently ranked the world's best-performing supply chains, based on ratings from a panel of experts, as well as three metrics: return on assets, sales in 2003 and rate of growth over the previous 12 months

1. **DELL**
2. **NOKIA**
3. **PROCTER & GAMBLE**
4. **IBM**
5. **WAL-MART STORES**
6. **TOYOTA MOTOR**
7. **JOHNSON & JOHNSON**
8. **JOHNSON CONTROLS**
9. **TESCO**
10. **PEPSICO**

SOURCE: AMR Research

customers back to suppliers and get a clear forecast of customer demand. And internally, they have to improve long-term demand visibility through constant collaboration between supply chain leaders and the sales and marketing departments.

Striving for perfect orders can be costly. In order to get the most from investments in supply chain technology and processes, companies need to take a targeted and gradual approach. "If you don't first determine where the gaps are in your supply chain, you might be shooting blindly," says AMR's Debra Hofman. In fact, for some companies—for example, those that make commodity parts such as ball bearings or other items that can be stored cheaply—the cost of striving for perfect orders may not be worth it.

For most industries, however, including automotive, electronics and retail, the payoff for high order-fulfillment rates can be substantial. And CIOs who want to be key players in their companies' strategic planning need to play an important role in overseeing the new supply chain strategy. Since they

understand what information technology is capable of, they are in a good position to argue the business case for greater investments in the supply chain. "Supply chain is no longer a back-office activity," says Kevin O'Connell, director of manufacturing and procurement processes at IBM's integrated supply chain division. "It has become a potential competitive weapon in the boardroom, and IT is extremely important because technology ultimately enables the various processes."

O'Connell and others stress that companies must first revamp their business processes and then choose the technologies that support those new processes. "Getting our supply chain in order is 75 percent process and 25 percent tools and technologies," Fjeldheim says.

In Pursuit of Perfection

Semiconductor manufacturers in Silicon Valley were among the first to use the term "accurate order" in the early 1980s, according to Hau Lee, the Thoma professor of operations, information and technology at Stanford University's Graduate School of Business. By the 1990s, this focus on measuring order delivery rates had spread to other industries, including food service, which was losing money because food distributors (the companies that deliver food to restaurants and other outlets) would withhold payment for what they considered imperfect orders. Lee says that while manufacturers understand the importance of aiming for accurate orders, many have underestimated the cost consequences of imperfect orders. At Seven-Eleven Japan, says Lee, the company noticed that highly paid truck drivers were often idle because of an imperfect order. As a result, the company started measuring perfect order rates and noticed that

NORM FJELDHEIM,

CIO of Qualcomm, realized his company would have to increase the number of its suppliers and improve real-time communication with them in order to meet a jump in chip demand.



LARRY SMITH,

West Marine's senior VP of planning and replenishment, says the boating company is now able to share sales information and demand forecasts with 200 of its suppliers.



when an order is perfect, the driver can leave right away.

Companies trying to boost their rate of perfect orders need to first identify what makes an order imperfect. According to AMR's Hofman, orders can be imperfect for any of the following reasons: out of stocks, manufacturing and transit delays, late and inaccurate shipments, poor quality of finished goods or damage to finished goods in transit. Companies striving for perfect orders can end up increasing their supply chain costs, Hofman says, especially if they are trying to deliver goods more quickly. Pierre Mitchell, supply chain analyst at The Hackett Group, says that companies should benchmark their supply chain costs against others in their industry and balance that against how important perfect orders are for their customers. Companies that manufacture parts for automobiles, for example, may have a very short window of time for delivery of their product. "If you're not on time, the vehicle assembly line may shut down," Mitchell says. If a manufacturer is not serving a customer well in this type of scenario, it could face steep financial penalties. However, if a company is making a commodity item, such as packaging material that can be stored at little cost, achieving perfect order is less important.

For those companies that decide perfect order fulfillment is worth

pursuing, the process starts with demand forecasting, a famously unscientific approach that some have compared to gazing into a crystal ball. Most experts agree that demand-forecasting software alone can't guarantee an accurate forecast. As a number of well-publicized mishaps at companies such as Nike have shown, ensuring the accuracy of the data going into the forecasting algorithms is key to avoiding expensive miscalculations.

So companies are changing their supply chain processes to get a better view. At Procter & Gamble, for example, the company started to revamp its supply chain four years ago to increase efficiencies and focus on getting a clearer picture of demand from actual consumers to supplement the traditional use of historical sales data. The idea is to provide information to suppliers on what is sold today through aggregate point-of-sale (POS) data. P&G, of course, has been exchanging POS data with some of its top retail customers, such as Wal-Mart, for the past 20 years through its automated replenishment system. When a cashier at Wal-Mart sells a box of Tide, that data flows back to a P&G distribution center. Once a certain number of boxes has been sold, a trigger goes off to send another shipment of Tide to the appropriate Wal-Mart distribution center so that it can be shipped to

the store. But today, P&G is working to provide its suppliers (the companies that make ingredients for P&G products) better access to production data. The company is doing this by collecting POS data from its customers and then transmitting production requirements to suppliers on its supplier portal. "This allows [the suppliers] to better plan their production, and deliver raw and packing materials on a just-in-time basis," says Patrick Arlequeeuw, vice president of the global supply network at P&G.

In the past, when a retail customer saw that a product was missing from the shelf, the retailer would check his back-office inventory and the distribution center. If necessary, he would then place an order with P&G, where someone would look at inventory levels to see how quickly she could get a shipment of Tide to the retailer's distribution center. Then, based on the historical sales data, P&G would contact suppliers for needed ingredients and packaging materials to avoid a repeat out-of-stock experience.

Now, for an increasing number of products it sells, P&G aggregates the POS information from the store and provides its suppliers with this information through a supplier portal linked to P&G's propri-

etary SAP system and a customer connect portal. "Everyone in the network works from the same data," says Arlequeeuw. The result is that P&G's average out-of-stock rates have fallen from 20 percent of brand categories with a 10 percent out-of-stock rate, to just 7 percent of categories experiencing that rate. Over the same period, says Arlequeeuw, the percentage of categories that are achieving an out-of-stock rate of less than 5 percent has increased from 43 percent to 60 percent.

Collaborating End to End

It was at a companywide strategy session in August of 2004 that Qualcomm executives—still smarting from the surprise jump in chip demand—decided it was time to shake up the company's supply chain. To get a better handle on supply and demand, the company decided to merge its supply-planning group with its demand-planning group to create one integrated supply chain organization. Where in the past the separate planning groups worked on their reports in relative isolation, each region now collects forecasts from customers and reviews them with Qualcomm's marketing forecast.

Qualcomm's top management, including its CIO, recognized that if the company wanted to boost its order-fulfillment rates, it needed

NOW THAT WEST MARINE shares sales information and demand forecasts with suppliers, the largest boating supply retailer in the United States is maintaining peak-season in-stock levels at its stores at 96 percent or better.

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The problem with P&G's old supply chain model was that replenishment of empty shelves could take several weeks, or even months at times. "Now, because we provide information to our suppliers on a daily basis, they understand what is happening and can replenish shelves right away," Arlequeeuw says.

P&G's demand forecast, while still not 100 percent perfect, comes closer to delivering accurate orders because it contains information about what is happening on store shelves on a daily basis—information that is ultimately transferred to suppliers. The goal, says Arlequeeuw, is to have enough flexibility in the supply chain so that plants can produce for tomorrow what was sold the week before.

a longer-term demand forecast that took into account suppliers' capacity capabilities. And to this end, the company would need to encourage collaboration not only in the supply chain division but across the organization. Qualcomm would have to produce a more detailed and frequently updated demand plan to serve as a road map for the entire company. First, the company had to beef up its sales and operations planning (SOP), a process that requires supply chain, finance, product marketing and sales executives to work together to devise a more accurate demand plan. That involves plugging all forecasting and demand data into Oracle demand-planning software, which has reduced errors and now allows for more analysis of the forecasts than the previous Excel-based process. "Ultimately, a company needs one system that represents the truth," says Mitchell of The Hackett Group. "Through sales and operation planning, the company can take its forecasts and turn them into a demand plan that everyone in the company will march to."

At Qualcomm, supply chain executives meet on a weekly basis with sales and marketing to review the forecasts and prepare for a larger, monthly gathering. The monthly planning meeting brings together the company's top management with finance, sales, mar-

keting and supply chain to discuss and analyze an overall demand forecast. "The end goal is to get a longer view of capacity requirements," says Vinay Asgekar, Qualcomm's senior director of supply chain management. Through this change in process, Qualcomm now creates 12-month SOP forecasts, and plans to extend that to 18 months in the near future. "The mind-set has changed completely when it comes to supply chain," says Asgekar. "Now we know we have to get a much longer view of demand in order to make these perfect orders."

At P&G, sales and operations planning is even more important now that the industry is moving toward 20 percent to 30 percent of goods on promotion or sale, says Arlequeeuw. Promotions can easily boost demand and lead to an out-of-stock at the store. That means that sales and marketing people, who are in charge of promotions, need to share this information with logistics and supply chain in order to put together the best possible demand plan.

"Sales, logistics and general managers need to work together to get an aligned picture of demand," says Arlequeeuw. In general, key leaders within each product category at P&G meet at least once a month to go over the demand plan. But some units, especially those facing pressure from consumers to frequently offer new and innovative products, meet more often. For example, the cosmetics division, under consumer pressure to produce new items on a constant basis, gets together on Mondays to exchange demand data.

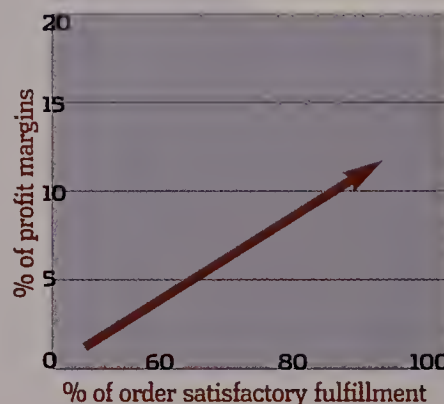
Bringing Suppliers into the Loop

In addition to improving collaboration within the company, organizations seeking higher perfect order rates need to share information on promotions and demand with suppliers. And that goes for more than just manufacturers. At West Marine, the largest boating supply retail chain in the United States, company executives learned this lesson the hard way. Trouble at the California boating giant's supply chain started as early as 1996, after the company acquired a competitor, E&B Marine. New distribution centers were poorly connected, and out-of-stock levels during peak season in 1996 climbed to more than 12 percent. At the same time, sales dropped by almost 8 percent. By 1998, with earnings sagging, the company's board of directors brought on a new CEO who quickly recognized that the supply chain was broken and moved to turn the boating company around by putting together a team to fix it.

Larry Smith, West Marine's senior vice president of planning and replenishment, says the company was able to right itself through a multiyear effort to link stores with warehouses and provide demand forecasts to its primary suppliers. Although he does not measure perfect orders in the same way that Qualcomm and other manufacturers might, he says that efforts to link sales data to suppliers have

Perfect Order = Higher Profits

As consumer packaged goods companies increase their order-fulfillment rates, their profit margins go up



SOURCE: AMR Benchmark Analytix

dramatically increased on-time replenishment rates. Over a period of three years, the boating supply company integrated its distribution center with store-level replenishment systems, linked to suppliers with EDI, and invested in a range of vendor and customer-forecasting and replenishment systems that connect stores to distribution centers and suppliers. Smith says West Marine is now collaborating with 200 suppliers, 70 of which are loading its forecasts into their ERP systems. As a result, the retailer has been maintaining peak-season in-stock levels at its stores at 96 percent or better.

Five years ago, the company's on-time fill for vendor orders at its distribution centers had sunk to between 30 percent and 40 percent. Now, they are at 80 percent, and Smith attributes the increase to the company's ability to quickly share sales information with suppliers. Every night, the company elec-

tronically polls all of its 390 stores for sales, updates the in-store replenishment systems and, with that data, projects sales and orders. West Marine sends the aggregated forecast data to its vendors via automated e-mail. Every Monday, the company sends in-stock reports to 200 suppliers. Then, with a year's worth of data, it creates an annual forecast, runs order calculations for distribution centers and sends its order forecast to suppliers. On a quarterly basis, company officials measure the accuracy of vendor orders.

According to Stanford's Hau Lee, West Marine's internal aggregation of the data helps suppliers understand demand according to specific regions and seasons. For example, boating supply sales in Boston in the summer will go up, whereas demand might be spread across the year in Florida. "They are helping their suppliers make sense of their POS data, and their on-time delivery performance has risen because of that," Lee says.

Qualcomm is also working to improve the way it shares information along the supply chain in its effort to boost its perfect order rate. Right now, Qualcomm shares information with suppliers via Web connections, or by sending them downloaded files. Over the coming year, the company plans to build an "e-hub" to connect to its growing stable of suppliers, although they have not yet decided whether to go with an EDI-type model, build their own system or use some sort of a mix. Fjeldheim and Asgekar say that while they are better prepared today to react to a sudden spike in demand such as the one that shook the company in 2004, Qualcomm is "not fully there," and has more work to do to better understand its suppliers.

The goal? More perfect orders and better profits.

"As you improve your perfect order rate, you squeeze losses—such as extra inventory and wrong quantities shipped—out of the system," says P&G's Arlequeeuw. "What we're seeing is that perfect order can lower your costs if you do it right." **CIO**

Senior Writer Susannah Patton can be reached at spatton@cio.com.



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THE ADVANTAGES OF WORKING

DANGEROUSLY

Early adopters of new IT and customers of startup vendors can win competitive advantage and other treasures, but only if they look before they leap

BY
CHRISTOPHER
LINDQUIST

YEARS OF BUDGET CUTS AND STILL-PAINFUL scars from the overheated tech-buying spree of the '90s have left many companies nervous about being early adopters. Being first in line for products based on cutting-edge technology is even more hair-raising when you're holding hands with a startup vendor. But a few braver-than-average companies are taking chances and making them pay.

The reasons they become early adopters vary. For some, it's a necessity rather than a choice, when they find no mature technology to meet their needs. For others, it's a calculated attempt to save gobs of money. For others still, it's a necessary step to leapfrog larger competitors. With our "State of the CIO" survey showing that expectations for IT to drive innovation and competitive advantage have climbed year-over-year, the urgency to try something new is mounting. Even Nicholas Carr—Mr. "IT Doesn't Matter"—admits in his book that IT first movers have an opportunity to gain competitive advantage.

Whatever the motivation, being an early adopter involves significant risks as well as rewards. As with bungee jumping, careful preparation can mitigate many dangers. But at some point, you're still going to have to take that big step off the bridge.

Before you do it, early adopters uniformly warn, you must make a strong business case

Reader ROI

- When to consider becoming a technology early adopter
- Risk mitigation tips for contracts and implementation
- Specific rewards from new applications, platforms and delivery mechanisms



New Technology

for the move—the stronger the better. Will using the new technology ensure that you will gain ground on the competition? Will it allow you to win new business you can't acquire any other way? Will it cut costs out of your operations like nothing else can? Will it make you orders of magnitude more agile than you are today? If you can't build a sound case around any of these business outcomes, then waiting or seeking a more established solution is probably the wiser way to go.

And even if you can build the case, you need to look inside and make sure that you and your company have the intestinal fortitude to follow through with the implementation. Working with new tech can have remarkable benefits, but the path to those rewards may be significantly more strenuous than when you deal with established technology from a known vendor. You'll be building best practices, not borrowing them. Technical support may be limited or nonexistent. You may in effect be beta testing (or even alpha testing) the product. The implementation process will require more risk mitigation planning and ongoing monitoring than you're accustomed to.

Still interested? Good. Now it's time to see how several companies made it work.

Reasons and Rewards

COST REDUCTION When Mysia Benford became information systems and logistics director at Associated British Nutrition and Agriproducts (ABNA) in November 2001, she knew she was getting into a company that didn't make changes lightly. Some inefficient business processes had been in place for decades at the agricultural products and services company. Farmers, for instance, often called for grain feed delivery when their feed bins were just about down to dust. Feed products are made to order, so a late order would alter the manufacturing schedule, introducing the possibility of raw material substitution with its increased cost. And pickup and delivery times were not always well-coordinated. Empty trucks—fresh from delivering feed to a farm—would sometimes pass other empty ABNA trucks on their way to the same farm to pick up products that the farmer was selling.

The typical solution for overhauling inefficient logistics is an ERP system. But Benford wouldn't hear of it. "My view is that [ERP] is an executive solution to 'Wouldn't it be lovely if there were one thing in the world that would solve all my problems?'" she says. "To be generous, it's naive."

Instead, Benford wanted a solution that would allow her to quickly integrate new business processes—and even new businesses—without the hassle that she associated with ERP. "All the [ERP] configuration issues mean you need a load of consultants before you can see how this software works," she says. And if that happens, "you've lost as an organization the ability to understand how your business works." Her alternative was something brand-new at the time (early 2002), a service-oriented architecture (SOA) built on an enterprise service bus (ESB) from Sonic Software. The integration flexibility it provides ABNA means that a \$2.8 million software-plus-implementation investment in Sonic ESB and a separate enterprise logistics product "have the potential to generate a 5 percent to 10 percent reduction in ABNA's \$100 million yearly costs for logistics," Benford says.

But convincing every piece of the supply chain to take advantage of the flexibility that SOA can provide remains an ongoing challenge. In the case of the empty farmer silos, for instance, ABNA has begun testing sensors that could generate an XML request when feed drops to a specified minimum level. The ESB would then treat that request as a B2B transaction for more feed, replacing the last-minute phone call from the farmer and eliminating the need for human data entry.

Convincing ABNA's service people how things should operate took some work.

"They talked about hiring someone on the customer service team to go online and see who needs feed," Benford sighs. "I said it was a waste of time, just send [the XML message to the order system]. The problem isn't necessarily that end farmer; it's the people who interact with that farmer. They've always done it one way, and they want to keep doing it that way. It's a fairly conservative environment."

PLAYING LEAPFROG Being an early adopter may be the only practical option for companies whose size and resources prohibit costly custom development or megapackage purchases from the big vendors—particularly if the company is looking to find a way to leap ahead of bigger competition. Such was the case for Epsilon, an approximately \$120 million subsidiary of Alliance Data Systems, which manages large-scale marketing databases and campaigns. Epsilon needed more data-mining power, but for a fraction of the price of a traditional system purchased from a more established vendor.

Through careful searching and a little luck, Epsilon discovered Netezza. In 2000, Netezza

EIGHT STEPS TO SUCCESS

- 1] Get other people involved in the early adoption decision, preferably from outside IT.
- 2] Check finances, particularly at startups; contact backers to confirm funding.
- 3] Investigate the vendor's management team and its track record.
- 4] Escrow the source code in case of vendor collapse.
- 5] Leverage your early customer status by providing input on product development.
- 6] Consider exclusivity agreements so that your contributions don't help competitors.
- 7] Limit the scope of implementation to reduce damage if something goes wrong.
- 8] If you're an early customer, ask for deep discounts to limit your financial risk.

—C.L.





PROFILES IN COURAGE

These companies, and those highlighted on subsequent pages, were all compelled by a business need or opportunity to take a calculated risk on new technologies and vendors

EARLY ADOPTER: ABNA

EXECUTIVE IN CHARGE: Mysia Benford, information systems and logistics director

PROBLEM/OPPORTUNITY: Outdated, inefficient logistics were a money sink

SOLUTION: Service-oriented architecture (SOA) and enterprise service bus from Sonic Software

YEAR IMPLEMENTED: 2002

RISK: Technology was unproven; some end users strongly resistant to change

MITIGATION: Found forward-thinking sponsors willing to prove SOA would work, then used their success as leverage with other groups

REWARD: 5% to 10% logistics savings and more flexibility

EARLY ADOPTER: Cox Communications

EXECUTIVE IN CHARGE: Mark Cotner, database architect

PROBLEM/OPPORTUNITY: Needed a high-speed database to collect data from millions of broadband subscribers' modems

SOLUTION: MySQL open-source database

YEAR IMPLEMENTED: 2001

RISK: Product was new

MITIGATION: Extensive testing before implementation; making sure in-house staff could manage most support issues; disciplined monitoring changes to software

REWARD: Faster than commercial alternatives, with dramatically lower acquisition costs

was a startup with an interesting idea: to build a data-mining appliance that would deliver better performance than existing options for far less money. It didn't even have a customer yet, but the product seemed ideal for Epsilon's needs. So after a period of close scrutiny, Epsilon opted to become customer number one.

By being a first customer, Epsilon carried a lot of weight with Netezza, which was always accommodating in making changes. At one point, for example, testing revealed some performance issues for certain customer-critical tasks, according to Epsilon Vice President of Marketing Technology Products Mike Coakley. But unlike a large company that might have simply added Epsilon's requests to a long list of fixes for some future upgrade, Netezza went to work immediately. "That's a side benefit of being an early adopter," Coakley says. "You get a lot of input into the product."

Coakley says that putting the Netezza box's benefits into dollars is difficult, but its time-saving features enabled one customer to run seven times more campaigns than in the same period in the previous year using Epsilon's proprietary system. The system has made a competitive difference for Epsilon customers in a couple of critical areas. First, its remarkable speed lets customers run many more variations on campaigns more quickly. Second, the Netezza box also works as an off-the-shelf relational database, replacing the proprietary data store on which Epsilon used to depend. That fact allows Epsilon to connect the app to standard marketing front-end clients, such as Unica and Business Objects, making it easier for customers to manipulate their own data. While he can't provide a percentage, Coakley says that Netezza's product contributed significantly to a \$1 million savings in Epsilon's IT budget by allowing the company to move off an aging, mainframe-based system.

JUST RIGHT FOR THE JOB Beyond saving money and giving you a leg up on the competition, sometimes cutting-edge technology is the only thing available that meets your cutting-edge needs. Four years ago, Mark Cotner, then manager of network and application development at Cox Communications, was challenged with building a data warehouse capable of handling a constant stream of diagnostic data from 1.2 million broadband customers. The resulting database would contain some 2 billion rows of data—more than 600GB of information.

Being an engineer, Cotner did what he always did: He started testing. And his results pointed him to what was then an unusual place—that is, the open-source MySQL database. "The particular piece of software that I was working on had some strict performance requirements," Cotner recalls. "It was a very insert-heavy data warehouse, and MySQL [version 3.23.41] was better at data inserts than any other database we tested." MySQL was also available for free, though Cox purchased enterprise-level support from MySQL AB, the company that created the software and ultimately released it as open source. But Cotner says that cost wasn't an issue. "We knew [the database] was going to be important for the business," he says. "We could have spent any amount of money we needed," noting that the data is used regularly by 500 support people and gets some 500,000 internal hits per day.

The warehouse has worked so well that Cotner says Cox plans to expand it soon to hold six months of data instead of three, and to include telemetry information from the company's set-top boxes as well. Ultimately, the database could house 12 terabytes of data.

SPEED TO MARKET Finding the right early adoption solution takes luck. Sitting in a class on venture capitalism at Notre Dame, Doug Wait wasn't exactly expecting to find the answer to his company's sudden supply chain management challenge. Wait, a plant manager for \$1.3 billion glass manufacturer Pilkington North America, suddenly faced a wave of new orders that would radically increase the volume and number of products produced at his operation within weeks. Spreadsheets—his then-current means of keeping track of everything—weren't going to do the job, and other solutions seemed to be biting off more than Pilkington was willing to chew. "I wasn't looking for the holistic solution to solve scheduling and world hunger," Wait says.

But when one of the venture capitalists teaching the class found out that Wait might have a need for some advanced scheduling software, he pointed Wait to a company

New Technology

he'd invested in, JRG, which offers a hosted supply chain management service that looked like it would fill Pilkington's needs—and do it quickly. “We started talking to them in October 2003, declared our intention to do business with them in November, and implemented between December and February,” Wait says. It took a fraction of the time and cost that other products, such as those from i2, would have taken, he adds. Better yet, JRG was eager for the work.

“They're hungry. They're aggressive. They need to make sure the perception that they leave you with is good,” he says. When Wait needed something, JRG was quick to deliver.

Keep an Eye on Risk

“The number you have dialed has been disconnected or is no longer in service.”

The ultimate nightmare scenario for any early adopter is a vendor that goes belly-up. And given that most startup businesses fail, it is a real risk. But properly prepared mitigation efforts can help companies avoid or recover from a bevy of unfortunate incidents, even the complete collapse of the vendor.

TECH EVALUATION The first step toward mitigating the potentially debilitating effects of early adoption is to establish a sound process for identifying new technologies worth using. In some cases, that involves a full-blown advanced-tech unit charged with testing new technologies in an R&D setting. But such setups can cost big bucks—and thus few companies even want to consider the option.

But there are ways to keep track of technological advancements without adding a new wing to your IT department. Bill McCreary, vice president, CIO and operating excellence for Pilkington North America, says the company uses a three-stage process to monitor technologies it may one day adopt. All IT employees are encouraged to keep an eye out for new technology opportunities as part of their jobs.

Once a new technology matures a bit (meaning it hasn't “just shown up in the newspapers,” says McCreary), it can go on the radar screen, which is stage one. Then someone will be charged with tracking its progress and developing a working understanding. Technology can stay in this stage indefinitely if Pilkington's technology evaluation committee feels it is still interesting but not ready for prime time. (RFID fits squarely in this category right now, McCreary says.)

If the technology continues to look promising and has matured sufficiently, it will move to stage two, the on-deck circle, where a business case can be built and possible alternatives identified. If it survives that process, Pilkington is ready to begin the third stage, some form of implementation.

Cox's Cotner has an even simpler process—test, test and test again. And he notes that success with one version of your early adopted technology shouldn't necessarily mean jumping enthusiastically to the next iteration. “We made that mistake with MySQL 4.0.xx when we tried it right away,” Cotner says. “We had some issues as a result” (including a small table-corruption problem that was later resolved in a minor version upgrade). That experience has made him much more cautious about subsequent upgrades.

VET THE VENDOR The drive to keep up with the Joneses—and then pass them in a blur on the right—has led more than one early adopter to a crash. But many such problems can be avoided with proper vetting of your new vendor.

Epsilon's Coakley may have the most nightmare-inducing story. Almost 15 years ago, the company decided to build a large part of its marketing program's management platform on the then-new Thinking Machines massively parallel processing platform, making Epsilon (at the time owned by American Express) the first company to put commercial applications on cooler-than-thou Thinking Machines hardware. It looked like the perfect mating of Epsilon's software needs with hardware horsepower, until

PROFILES IN COURAGE

EARLY ADOPTER:
PPG Industries

EXECUTIVE IN CHARGE: Jim Johnston, IT director of enterprise architecture and advanced technology

PROBLEM/OPPORTUNITY: Needed a way to discover and manage ideas for new products

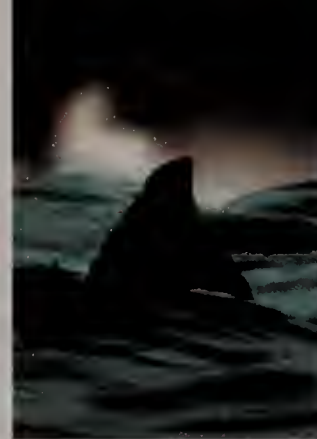
SOLUTION: MindMatters idea-tracking system

YEAR IMPLEMENTED: 2000

RISK: Very small company with a limited track record; failure would have created employee resistance and hurt flow of new ideas

MITIGATION: Exhaustive prepurchase research; source code escrowed

REWARD: Collaboration facilitation extended to all PPG employees; functionality expanded beyond discovering new product ideas



Thinking Machines went up in a flaming ball of mismanagement in 1995.

“We had to replatform [the entire application],” Coakley recalls. “Thinking Machines was so new, we had to write everything for that damn machine.” It took months for Epsilon to make the switch. But the experience taught Coakley to be very careful when working with new vendors. When Epsilon decided to investigate Netezza, for instance, Coakley brought in people from groups outside IT—including the CFO's office—to cast a cautious eye on the deal. “Folks like me, as much as we're supposed to be skeptical, we get excited about this stuff,” Coakley says. “Sometimes you need somebody else to ask the tough questions.” Epsilon's financial people delved into Netezza's fiscal footing, while the sales team made sure the company had a solid idea of how to turn Netezza's technology into a salable product.

INTERNAL PREPARATION Assuming that your vetting process results in a business deal, you should still prepare your staff for the possibility of failure. Doreen Griffith, CIO and senior vice president at securities-broker service provider Securities America (SA), recalls when a software vendor (she won't name names) made a shift away from the company's industry space, potentially leaving Griffith with an orphaned product that is part of a core offering to more than 1,500 representatives. But, she says, her

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New Technology

company's entrepreneurial culture saved the day: SA bought the source code and continued development on its own.

That same philosophy applies to several open-source products that SA uses as well (including a clustering platform from Emic Networks, the MySQL database and open-source voice-over-IP technology from Asterisk). Once the product comes in-house, SA developers learn it inside out, in case they need to support it on their own sometime down the road.

Midsized companies such as SA aren't the only ones that can benefit from this "once you have it, you own it" approach. PPG Industries, a 30,000-plus-employee global manufacturer of glass and related chemicals, followed the same philosophy when it sought a tool to track idea generation across the company. PPG was ready to build its own Web-based idea generation and tracking system to replace its manual process. But as the company was about to get started developing the system on its own, a call from a startup vendor, MindMatters Technologies, led to the installation of a prebuilt system that delivered what they needed without the hassle and expense of going through a large development effort. And, says Jim Johnston, PPG's IT director of enterprise architecture and advanced technology, the fact that his company was prepared to build the software itself meant that MindMatters' going under wouldn't be as big a problem as it might have been. Part of the contract puts MindMatters' code in escrow, and PPG would pick up the development effort itself should the unthinkable happen.

LIMIT THE SCOPE Narrowing the scope of a new technology can also help, even if the tech will be running some critical part of your business.

"Would we have put our *entire* Western Hemisphere network on something that looked like a JRG? No," says Pilkington's McCreary. Instead, JRG's hosted service let the company more closely manage operations at a single plant, allowing for faster switchover to different products and helping maintain the near-real-time manufacturing environment the auto industry requires.

If things hadn't panned out with JRG, McCreary was certain that it wouldn't cripple the company. "Had this failed, we'd be back on spreadsheets," he says. "We'd be working Saturdays and Sundays and have higher costs, but the customer wouldn't have seen anything." And purchase contracts with JRG arranged by plant manager Wait helped guarantee minimal financial losses if things didn't pan out. "We set up the business structure to minimize risk, Wait says. "There wasn't a lot of money up front." And the fact that JRG was a hosted service only loosely coupled to the company's data meant the plant could disconnect quickly and stop paying for it at the same time—a far cry from tightly integrated ERP systems with long-term support contracts.

DON'T GIVE AID TO THE ENEMY There's one other risk that might not occur to some companies until well after the implementation: Your efforts may ultimately help your competitors.

Epsilon's Coakley, for instance, expects some of the labor that his company put in to ensure that Netezza's data-mining box works well for Epsilon will now benefit Epsilon's big competitor, Acxiom, which bought Netezza products last summer.

Coakley notes that early adopters might be able to arrange exclusivity agreements with their vendors. But those agreements will cost money. "If you don't make that decision to go exclusive, then you know ultimately it's going to open up to your competitors," he says. The key, he cautions, is determining if you'll still be able to take good advantage of the product, even when you're no longer the only user. And even if Netezza's products no longer provide the leapfrog advantage they used to, Coakley says, he feels Epsilon can still take good advantage of the products to add value to its offerings. And if he'd never gone with Netezza, he reasons, he never would have gotten his initial jump. The reward was simply worth the danger. "You never want to be in the position where you're going, 'Me too.' You always want to be viewed as a leader," Coakley says.

PPG's Johnston reiterates the mentality that drives companies to risk early adoption. Taking a cue from PPG's own drive to constantly create new products, Johnston says, "If you're first to the market, you capture that market. You can always follow other companies and take their breadcrumbs. But I'd rather be out there." **CIO**

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PROFILES IN COURAGE

EARLY ADOPTER: Pilkington North America

EXECUTIVES IN CHARGE: Bill McCreary, VP, CIO and operating excellence; Doug Wait, plant manager

PROBLEM/OPPORTUNITY: New sales contract required Pilkington plant to increase output dramatically and quickly

SOLUTION: JRG's hosted supply chain management software

YEAR IMPLEMENTED: 2004

RISK: Small vendor with short track record; product failure would dramatically reduce profit margins on new contract

MITIGATION: Limited rollout to single plant

REWARD: Rapid deployment—took only five months from first contact to live app

EARLY ADOPTER: Epsilon

EXECUTIVE IN CHARGE: Mike Coakley, VP of marketing technology products

PROBLEM/OPPORTUNITY: Small company needed technology to leapfrog much larger competitors

SOLUTION: Netezza data-mining device

YEAR IMPLEMENTED: 2002

RISK: Epsilon would be Netezza's first customer

MITIGATION: Careful vendor vetting by non-IT groups, including finance

REWARD: New product features increased sales; turned off expensive mainframe system

The Great MIGRATION

A Guide To Moving To **NEXT GENERATION COMPUTING**

FACT: A company's survival increasingly depends on its employees' ability to access information. As companies do business in an ever-more global and electronic world, business professionals must access accurate, reliable information on the fly—and from a multitude of resources. This demand for information means that companies now cast wider nets in an effort to capture the best data, interlinking their systems with a tight network of distributors, suppliers, partners and customers.

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TO LEARN ABOUT:**

- Market Trends driving the move to optimized computing;
- Common Challenges confronting enterprise business leaders;
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As the need for good information spirals, so does the automation and integration of information reservoirs, as IT leaders look to move business processes online to systems that yield their contents simply and quickly. As a result, most organizations find that their ability to successfully use information depends on the efficiency of their IT infrastructure.

In this new era, the traditional mainframe or proprietary architecture proves less than optimal. Instead, CIOs are looking to service and solutions providers like Fujitsu, along with server platforms such as PRIMEQUEST®, to provide a proven pathway to a more open infrastructure.



"We see a telling trend of IT organizations migrating to highly adaptive IT infrastructures, such as grid or utility computing," says Richard McCormack, senior vice president of product and solutions marketing at Fujitsu Computer Systems.

The next phase of the open era is to move from unsustainable growth in complexity to a simpler model of integrated utilities.

Market Trends

The move toward optimized IT is driven by several factors:

EFFICIENCY. In the wake of the technology melt-down of the early millennium, companies have cracked down on unregulated IT spending, demanding that CIOs get more for their dollar.



Custom Publishing



As a result, IT executives are looking under every rock for ways to increase performance and efficiency, and the IT infrastructure offers many possibilities. With typical server utilization hovering in the 10-20 percent range, there is plenty of room for improvement. Moreover, resource spending for peak load management often leaves companies with excess equipment that is little used over the course of a year. In the meantime, the current popularity of decentralized systems that are dedicated to specific groups or departments means more waste, as business users spend on redundant and underutilized technology that's then sequestered away in the department.

FLEXIBILITY. There's a growing need for business flexibility and IT must support that goal. Business users now expect technology to provide instant access to information in order to make decisions on the fly. Not only that, but they also expect IT to be able to respond immediately to new business changes and requests, driving increased pressure to telescope the amount of time it takes to implement necessary changes, in spite of the fact that most IT organizations are not growing their work force at a rate that can easily accept such demands. As a result, CIOs are searching for technologies that enable them to implement changes quickly—the utility model.

Fujitsu Solutions

In the face of such a complex new IT landscape, many companies have turned to Fujitsu for help. Fujitsu offers a number of technologies and services built around TRIOLE®, the Fujitsu strategy for optimized IT. The TRIOLE strategy is a combination of the Fujitsu platform deployment and developmental strategy that helps increase business agility and business continuity in several important ways. "By enabling the rapid introduction of new forms of open IT infrastructure, the TRIOLE approach helps companies adopt new technologies faster, supporting the need for greater agility in a cost effective manner," says Toshio Morohoshi, president and CEO at Fujitsu Computer Systems.

The TRIOLE strategy does this through three key concepts:

VIRTUALIZATION separates applications and data from dedicated hardware resources by creating "virtual" pools of resources;

AUTOMATION allows computers to manage computers, enabling systems to automatically adapt to changes in environment and to self-heal when necessary;

INTEGRATION involves the ability of systems to be quickly linked in response to business changes.

The next phase of the open computing era is to move from unsustainable growth in complexity to a simpler model of integrated utilities.

SUPPORT. The growing reliance of business users on electronic information—the more ubiquitous "business anytime, anywhere" environment—has also increased pressure on IT to provide reliable and timely service and support. The need for strong business continuity makes it more difficult to operate in the traditional manner—for example, field testing components has become unrealistic and it's become increasingly difficult to adjust inherently complex systems that contain multiple interconnected components. Naturally, all this comes at a cost, as CIOs face increased pressure to do more with less.

Fujitsu uses pre-tested configurations, solution stacks and reusable platform building blocks in template form in order to quickly integrate technology platforms. Integration efforts from Fujitsu are matched by service offerings designed to quickly deliver and customize these templates.

By using these three elements, Fujitsu enables efficiency, agility and enhanced support within an IT infrastructure. For example, virtualization allows IT leaders to pool hardware for more flexible and efficient usage patterns, reducing the impact of hardware swap-outs or malfunction on the business

and saving time and money through more efficient usage patterns. The automation and integration elements within the TRIOLE strategy allow IT organizations to adapt more easily to change, increasing operational agility and ensuring that users can reliably depend on infrastructural components that support key business processes. These elements also allow Fujitsu to deliver service layers that enable IT leaders to more quickly deliver on-demand use of computing resources.

The Move to Modernization

The cost of maintaining and upgrading proprietary mainframe systems is increasing, making it more and more difficult to justify the worth of a system that is frequently seen as an inflexible platform for new application development. As a result, companies have started to move away from their legacy systems in search of open systems that can support the new computing mandate. At the same time, however, CIOs must find an open model that provides the same high availability, stability and integrity of previous mainframe models.

The PRIMEQUEST servers from Fujitsu offer these capabilities. Fujitsu is able to draw upon its years of mainframe-level development technology and skills to present a mainframe-class server that enables companies to modernize their platform technology.

Moreover, by using PRIMEQUEST servers, the hardware platform specifically enhanced to support the open enterprise standard, CIOs can migrate to open systems more safely and reliably.

PRIMEQUEST servers support the growing capabilities of Windows and Linux systems in the mission-critical arena by providing hardware platforms designed using mainframe-derived levels of hardware reliability, availability and serviceability (RAS). This leaves Windows and Linux customers free to enjoy investment protection, freedom of choice and unlimited growth when provisioning for future growth, without compromise.

This freedom of choice is one big reason why Fujitsu partner EDS finds PRIMEQUEST such a valuable technology. "When EDS joined the Mainframe Migration Alliance, our goal was to deliver the latest innovations in application migration to our clients," says Stan Alexander, EDS chief technology officer. "PRIMEQUEST servers deliver scalable mainframe-class computing on multiple operating environments with an unwavering commitment to reliability, performance and TCO reduction."

Further, the PRIMEQUEST server line meets the needs of open systems organizations looking to maximize their existing Linux and/or Windows

TRIOLE Enables the Future



skills with top-to-bottom coverage in the data center. No longer will growing organizations have to learn a new skill set just to implement the highest levels of business support.

Business Continuity

Moving to open computing solutions such as "on-demand" means that companies must find a way to bring reliability and scalability to the open computing concept.

PRIMEQUEST servers offer such an opportunity, moving Windows and Linux systems into mission-critical arenas through hardware platforms that perform to mainframe levels of reliability, availability and serviceability.

Designed using principles, engineering technology and Fujitsu know-how garnered from decades of high reliability development, the PRIMEQUEST platform conforms to the TRIOLE strategy's business continuity, business agility and business efficiency standards for open systems. PRIMEQUEST, like all Fujitsu mission-critical systems, also matches the expectations of customers looking at the next generation of autonomous computing.

Business continuity comes from architecture with fault immunity included at every level. The combination of Intel® Itanium® 2 Processors and the Fujitsu chipset delivers superior mainframe-class RAS. At the system level there is end-to-end error prevention,



System Mirror PRIMEQUEST servers offer the capability to run memory and crossbars as mirrored pairs. This option, enabled via the Dual Synchronous Architecture in PRIMEQUEST servers, provides fault immunity for the hosted operating system and applications, transparently guarding against errors that could otherwise cause a system panic.

Flexible I/O The PRIMEQUEST architecture physically and logically separates CPU resources from the I/O resources. Fujitsu calls this Flexible I/O (FIO), in which system (CPU and memory) resources can be paired with I/O resources as the application dictates. Furthermore, FIO allows speedy recover from system board errors, hot standby system boards can readily assume all of the I/O connections for full connectivity.

redundancy and recovery. The new System Mirror option lets memory modules and crossbar interconnects all operate in duplex mode. Errors can be isolated without system halt for exemplary systems opera-

4 used with PRIMEQUEST servers, brings Linux closer to mission-critical operation and support.

Fujitsu also works closely with Microsoft, under the Global Alliance Partnership, to deliver fail-safe environments for mission-critical operation of Windows applications.

For business efficiency and flexibility, new technologies allow up to eight partitions to operate safely from any single point of failure. Each fully independent PRIMEQUEST server partition provides the flexibility and operational characteristics of the system as a whole.

In the end, the burden of business expectation falls squarely on the shoulders of IT. Business users must be able to depend on technology to make the business decisions necessary to grow the business, and yet IT must continue to do so efficiently and effectively. For many, that means choosing utility and grid technology models—truly mission-critical changes that

By using PRIMEQUEST,
the hardware platform specifically
enhanced to support the open enterprise
standard, CIOs can migrate to open
systems more safely and reliably.

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tion continuity. Flexible I/O (FIO) allows I/O resources to match real-time performance requirements on-demand. Such flexibility and standard redundancy decreases downtime and the system mean-time-to-repair (MTTR).

Fujitsu has worked with the major open systems operating vendors to help ensure that their products take best advantage of PRIMEQUEST servers and that the service relationship is fully enabled to provide mission-critical support.

To further strengthen Linux for business critical use, over 500 Fujitsu developers are contributing to the open source community. In addition, the Fujitsu Joint Development Organization with Red Hat, as embodied in Red Hat Enterprise Linux

can affect business success. With such a responsibility, it makes sense to choose a company with long-standing success in the field, such as Fujitsu. •

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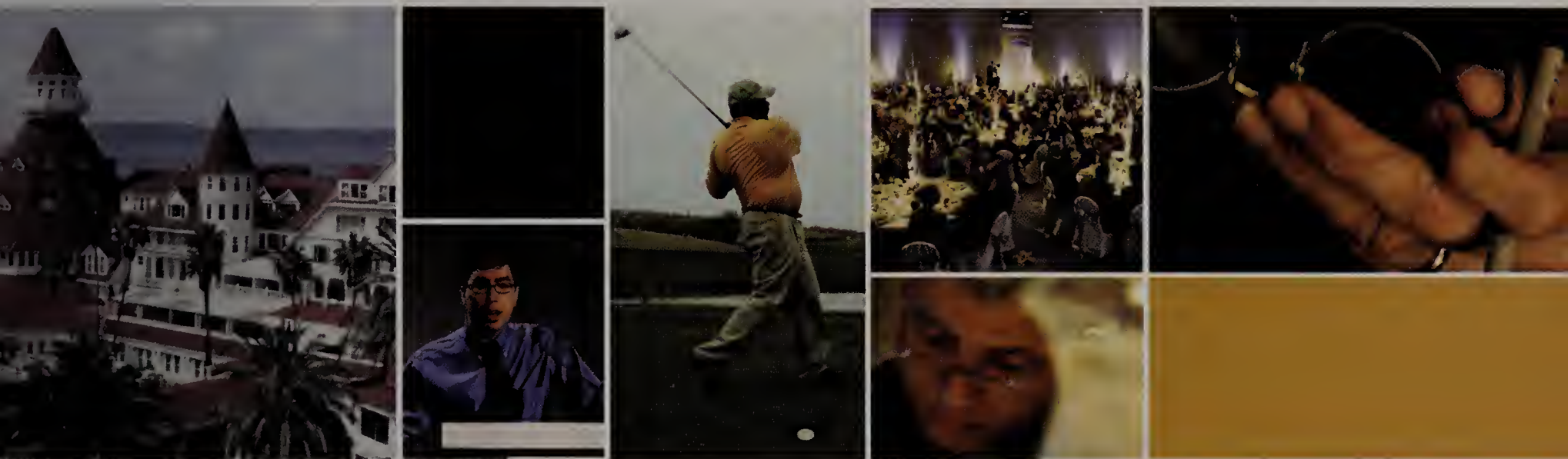
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RULES OF THE ROAD FOR TURN AROUND CIOs

BY ALLAN HOLMES

Turnaround CIOs are in demand. Here are the six steps for righting a troubled IT ship.

Reader ROI

- :: Why turnaround CIOs are in great demand
- :: How the three types of turnaround CIOs differ
- :: What six actions can produce an IT turnaround

WANTED: CIO for the number-three office supply company in a three-company industry. Company being investigated for inappropriate promotional payments and falsifying documents. Executive in charge of retail and CFO both resigned in January. CEO resigned in February. In March, company announced a fourth-quarter loss of more than \$24 million before the sale of major assets. Company still digesting an acquisition concluded more than a year ago.

PHOTO BY JEFF SCIORTINO



When **Randy Burdick** joined OfficeMax as CIO, he saw the company's numerous problems as an opportunity to prove the value of IT.

Leadership

Sound like the ultimate nightmare job? Not for Randy Burdick, who took the CIO post at OfficeMax in March. "Turnaround situations attract me when I think there is a chance for success," he says. "The opportunity to be on the ground floor of a new team was exciting, and I believed that the challenges at OfficeMax were solvable."

Burdick isn't some masochistic executive looking for a short trip to the unemployment line. He's part of a band of technology chiefs who call themselves, or find themselves called, turnaround CIOs. They are brought in when Something Big has, is or will go down at a company. The Something Big could be financial problems or even malfeasance, consistently bad performance in IT or the broader business, or a merger or major shift in strategy or operations.

The need for turnaround CIOs may seem the exception rather than the rule. But with many companies still struggling in an up-and-down economy and the federal government's closer scrutiny of corporate finances because of Sarbanes-Oxley, a large portion of corporations are looking for these hired guns to fulfill three roles: firefighter for a business beset with numerous problems, drill sergeant for an out-of-order IT department, or guide for an organization embarking on a transformation. That means somewhere between 30 percent and 50 percent of companies in the market for a CIO need the turnaround variety, estimates Brad Brown, director of the business technology office for the McKinsey & Co. consultancy.

While the turnaround IT methodology isn't carved in stone, there is a common set of steps that these CIOs employ. Some of these actions are common sense but are frequently overlooked, such as open communication with IT employees. Some are difficult decisions that the CIO must gut out for the good of the company, such as firing a large portion of senior IT managers. All require quick results, or the CIO will soon join his staffers on the street. Turnarounds are all about performance. "More than anything, you have to expect change," says Jeff Chasney, CIO and executive vice president of strategic planning for CKE Restaurants, which operates the hamburger franchises Hardee's and Carl's Jr. As a turnaround CIO, "you haven't been called in

because things are running well; they're broken, and things have to change—a lot."

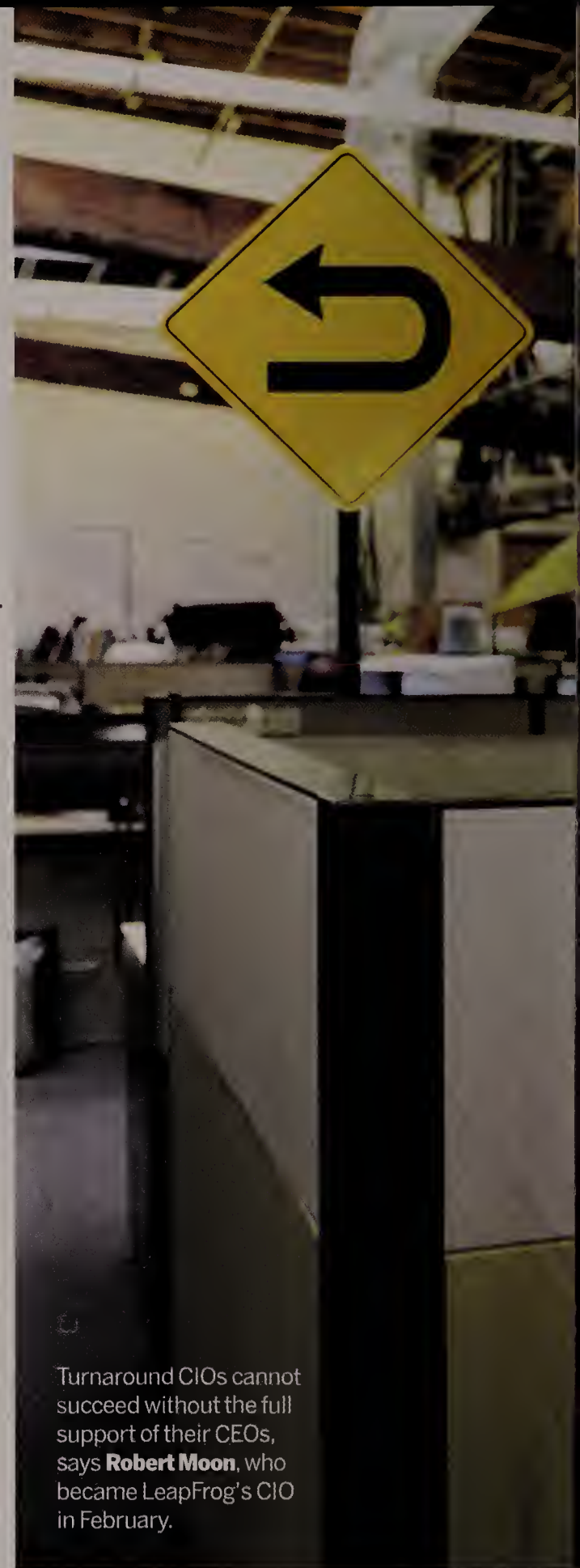
TYPES OF TURNAROUND CIOs

The quintessential turnaround job is the company in crisis. A sense of urgency hangs over a CIO's every decision. OfficeMax suffered from numerous, interwoven problems, some of which could be directly linked to trouble in the IT shop, Burdick says. For example, because of fundamental problems in the way IT functioned, sales reports took too long to generate to be useful. A lack of technology standards made it difficult to operate the business as a single enterprise and take advantage of economies of scale.

Dana Deasy faced an even greater sense of impending doom in July 2003 when he became the first-ever CIO at manufacturing and electronics conglomerate Tyco International. The company was reeling from an Enron-like scandal in which its former CEO, Dennis Kozlowski, was under investigation for allegedly misappropriating more than \$600 million from the company (in June he was found guilty of grand larceny, among other charges); its entire board of directors had been replaced; and it was facing bankruptcy with no way to pay \$11 billion coming due. It also had no central IT organization, common infrastructure or common data structure to speak of.

But Deasy simply viewed the job as a startup—albeit a very large one—just as he had his previous two CIO posts: at electronics giant Siemens, where he led the effort to develop a CIO Americas office, and before that at General Motors, where he was a divisional CIO in charge of building an IT organization after the GM spin-off of EDS. "I tend to walk into a position where there is nothing, somewhere where you have to put something in place," Deasy says. "Even though Tyco brought with it crisis management, I viewed it more with a startup mentality."

A second type of turnaround situation for CIOs is the company with fundamentally flawed IT. When John Nordin became CIO at Insurance Auto Auctions (IAA) in Novem-



Turnaround CIOs cannot succeed without the full support of their CEOs, says **Robert Moon**, who became LeapFrog's CIO in February.

ber 2003, the IT department was spending more money than it was delivering in business value, was not delivering systems on time or in some cases at all, and was poorly managed. IAA, a \$249 million company that contracts with insurance and car rental companies to sell off cars that are considered total losses in wrecks, was spending a lot of money on IT (between \$5 million and \$10 million a year) but getting very little in return, Nordin says.

In his first 12 months, he focused on renegotiating leases and contracts, such as a telecommunications contract for data serv-



ices, saving IAA nearly \$1 million, which dropped straight to the company's bottom line. Nordin also focused on serving IAA's external customers. For example, for IAA's buy-side Internet auction system, used by companies that consign wrecked cars to IAA and those that buy them, Nordin chose to team up with outside contractors to build the system. In the past, IAA staff would have built the entire system, slowing down the delivery.

A third type of turnaround is the business transformation, in which the company is betting its success on a new strategy. Usu-

ally IT is a critical part of the change. "What happens under those conditions, those companies get more strategic in view and increase their peripheral vision," says Stephen Mader, vice chair of executive search firm Christian and Timbers. "When the companies do that, they begin to notice the information they want and don't have."

That's when transformational companies need a CIO like Robert Moon, who in February joined LeapFrog, a maker of electronic educational toys. IT systems at LeapFrog have not kept up with the company's growth. (Two class-action lawsuits filed in June

alleged that LeapFrog's failure to correct IT and supply chain problems had led directly to missed earnings estimates in 2004.)

Moon quickly planned a three-phase upgrade. First, ERP applications and Oracle databases are being brought up-to-date, since hundreds of interfaces currently require updating every time an application is upgraded. Phase two will be an upgrade of LeapFrog's supply chain, which now comprises eight software systems, making it difficult to communicate quickly with business partners. In phase three, Moon plans to build a CRM system to streamline the marketing group's and sales force's systems.

Transformational turnarounds are becoming more common—or at least more commonly warranted. "I think the need for these kinds of CIOs is becoming more immediate now," says Charlie Feld, former CEO of the Feld Group, a CIO-for-hire consultancy that turned around several large companies before it was acquired by EDS in 2004. "In every industry now there is a Wal-Mart or a Dell that is changing the game. The older companies need to transform their legacy systems that need to enable, not inhibit, the speed and agility of business."

SIX STEPS TO TURNAROUND (AND ONE PREREQUISITE)

To effect a turnaround, a CIO must make quick decisions that can have a significant impact on the business. This requires support from the top. "This is very much like a baseball game," says CKE's Chasney. "You're not managing game by game or inning by inning; you do it play by play. It is a paradigm shift that has to be supported by the CEO."

Moon says two of the primary reasons he took the CIO job at LeapFrog were that he reported directly to the CEO, and that his boss was very open to new ways of thinking and to taking managed risks. Moon meets once a week with the CEO for 30 minutes, during which Moon reports on what he is doing, how IT programs are progressing

and on future projects. "He's 150 percent behind what I am doing," Moon says. "The CFO is tremendously supportive too."

But with the support from the CEO and other top executives comes higher expectations for using IT to rescue the company. "That means you have to set reality; you have to differentiate between fact and fiction," Deasy says. Otherwise, the CIO will continually fight battles over what can be done and what cannot, what needs to be upgraded or thrown out and built anew, and what should be done immediately or later. "Before you know it, you will have lost your chance to help the company," Deasy says.

Read on for six steps to help you meet the high expectations and accomplish a turnaround, distilled from CIOs who have done it.



DELIVER QUICK WINS.

Every CIO has to show the value of IT to the business, but a company suffering from bad PR, poor earnings and low morale is desperate for some fast returns. Typically, the turnaround CIO has only six months, maybe even less, to show that he has had an impact. After that, the honeymoon is over.

Long before Chasney joined CKE in 2000, he was director of systems development at Best Products from 1981 to 1985. There, he gained his first experience at turnarounds and learned a lesson he would apply in each IT executive job thereafter: All projects need to have a meaningful deliverable every three months. Best Products was suffering from an ineffective IT shop. Chasney determined that the IT staff was "wallowing in methodology," he says. "They were so bogged down in forms, structure and process that they couldn't see where they were at."

Chasney told the staff they were done with the development process and needed to go into production. Within three months, they delivered the online system of terminals throughout 1,000-plus restaurants, which was the foundation for a business intelligence system that would deliver daily data to corporate headquarters on 25 performance indicators. The system also provided marketing data that measured sales of specific menu items after changes from

advertising, promotions and the introduction of new items. Best Products' business partners and employees no longer viewed the IT shop as a nemesis or department that wasted money, Chasney says. "You have to deliver actionable items, such as business intelligence, right off the bat."



FILTER THE NOISE. Often, it's hard to know what to do first in turnaround situations. Top executives, board members and IT managers all have their versions of what needs to be done to save the company. At Tyco, the sug-

gestions came in spades, Deasy says. He calls the difficult job of prioritization "filtering out the noise." Yes, a common financial system was important to better track the \$40 billion company's finances, which were suffering. And, the 400 separate ERP environments probably needed to be consolidated into one.

However, most Tyco employees also weren't able to e-mail each other easily. "You don't wash the windows when the building is on fire," Deasy says. "We were a company in crisis and fighting for our survival, and we had to see what is important and what can wait. Does it make sense to want a common system? Yes, but probably not a thing to

Do You Have What It Takes?

The personality traits that distinguish turnaround CIOs

Like the steely-eyed hired gun brought in to clean up the riffraff, turnaround CIOs typically display a take-no-prisoners attitude. But some of their other personality characteristics are surprising.

For sure, turnaround CIOs tend to have confidence and a clarity of thought. They are certain about what works, what doesn't and what is needed for a quick result.

You can hear it in the words of Robert Moon, CIO at LeapFrog: "I know what the risks are, and I'm not afraid to take risks. The only way to not make mistakes is not to do anything."

If you are a turnaround CIO, "you are highly prescriptive, you are not a patient listener, and you have a sense of urgency and metrics and a sense of commitment to task at the high end of the scale," says Stephen Mader, vice chair of executive search firm Christian and Timbers. "There's no egalitarian environment in that kind of case."

With that sense of urgency comes a laser-focused set of tactics to quickly fix an IT snafu, says Brad Brown, director of the business technology office at the McKinsey & Co. consultancy. "This person will have deeply felt beliefs about how you manage business alignment operations," he says. "He has a model in his head that goes very deep on how to identify the five or 10 key problems."

Turnaround CIOs have no problem firing IT staffers and managers if needed—and often, it is needed. It's for the greater good of the company.

What's unexpected, perhaps, is that turnaround CIOs tend to devote significant time to taking care of their IT staff. In Jeff Chasney's case, that means publicizing a code of ethics that everyone can live by. One of his first acts as CIO at CKE Restaurants was to tell employees what he viewed as the three most important aspects of their lives: health, family and career—in that order.

John Nordin, CIO of Insurance Auto Auctions, met with every one of the 65 members of his new IT staff, shaking hands and trying to put names to faces. "It might sound trite but when CIOs are replaced, people are scared because there is so much uncertainty and doubt," he says.

Perhaps that points to a sound business reason for turnaround CIOs' concern for their people: Overly anxious IT staffers aren't focused on the tasks at hand—namely, fixing IT and getting back to business.

—A.H.

MORE THAN ANYTHING, you have to expect change. You haven't been called in because things are running well; they're broken, and things have to change—a lot."

—JEFF CHASNEY, CIO, CKE RESTAURANTS

focus on when you can't communicate."

The challenge has been in determining how to allow the 115,000 Tyco employees who have access to e-mail to connect across 140 disparate directories. Deasy recognized early on that a single common directory was not pragmatic. His team settled on an identity information server technology that would synchronize the systems.

Another priority has been to consolidate the 140 separate networks, which connect 2,140 sites worldwide, into what Deasy calls a "One Tyco" network. He plans to consolidate 80 percent of the networks by the year's end, leaving out businesses that already consolidated their networks internally. "Don't assume you have to slay the dragon for the whole company," Deasy says. "Why tie up those who are already doing a good job into the initiative?"

3

ALIGN I.T. Successful turnarounds require that everyone pull together. In his fifth week on the job at OfficeMax, Burdick called a three-day conference for the top 50

OfficeMax IT managers to map out where the company's IT operations should be in three years. Rather than leading the process himself, Burdick asked the managers to develop the three-year plan.

At the conference, Burdick also reported the results of a survey he had distributed to all 500 IT employees two weeks prior, asking how they felt about the direction of the company, the integrity of the management team and the openness of communications, among other things. Several employees provided up to three pages of typed comments, and one employee even listed managers whom he said did not believe in Burdick's team approach. Burdick says he mentioned the survey to the managers (minus specific names) and told them, "If you happen to believe that the team approach is a joke, I invite you to leave now."

4

FIRE AND HIRE RIGHT. Lay-offs and firings are a staple of turnaround situations. However, CIOs should try to retain the staffers that give them the best chance of success. On day three of his new job at IAA, Nordin called a meeting to remind his staff that the IT shop does not generate revenue and therefore is a service to the company. "We are here at the pleasure of the business. So you better be service-oriented," he told the IT staff. "If you don't agree with me, you better get over it."

Creating the right staff also means hiring the right people. Deasy says one of his most important steps in turning around Tyco IT was hiring IT managers with a "turnaround attitude." When interviewing to fill three divisional CIO positions, he looked for managers who could walk into a situation in which they had no one to call and no documentation of IT systems or data—people who could say to themselves, "I am the staff; I write my own PowerPoint briefings and write my own spreadsheets," Deasy says. "I'm looking for a mental toughness, and like the Wild, Wild West; they must like a little bit of chaos and not be afraid of that."

5

STAND UP FOR YOUR STAFF. While serving as a top IT manager in the U.S. Navy and as CIO for the Office of Naval Research, Moon learned that a leader needs to be approachable so that people have the freedom—and comfort—to report problems. Moon tells his LeapFrog staff the story of how a captain whom Moon knew in the Navy ran a guided missile cruiser over a large submerged rock, injuring several crew members. Sailors on the bridge suspected the ship was headed for the rock, but they were afraid to tell the captain to change course for fear of being wrong. Moon says he wants his staff to tell him their opinions and help him make the right decisions. "The important part here is that they are

confident in their knowledge that if they make an honest mistake, I will support them," he says. "I also learned in the Navy that if you take care of your people, they will take care of you."

Deasy follows a rule of keeping IT staffers "out of the line of fire"—that is, corporate politics and the various agendas in the company. Deasy says he wants IT managers focused on executing day-to-day operations, not distracted by trying to get buy-in or hearing different opinions of what must be done. "If they're dealing with that stuff, we're not moving the needle forward," Deasy says.

6

GET THE TECHNOLOGY RIGHT. With a premium on moving fast, turnaround CIOs may believe they don't have time to test whether new systems or processes work. In

actuality, it is more important than ever to make sure systems are workable. New failures will only create more delays, and morale, already low, will only get worse.

Nordin found this out the hard way by not sufficiently managing IAA's switch to Microsoft Active Directory. The changeover was the first production shift Nordin implemented. But a glitch prevented employees from accessing the main order entry system. Because changes had not been logged, the staff did not know what to undo.

If these six steps toward accomplishing a turnaround sound like they would be useful in your organization, you're not alone. EDS's Feld, who is one of the deans of CIOdom, estimates that six out of every 10 CIOs should be applying turnaround methods—even if they don't face a classic turnaround situation. "These CIOs have a good set of skills that would be applicable in almost any company," he says, "whether a turnaround company or one that is more stable." 

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Grad.

FIELD HOSTAGE

BY THOMAS WAILGUM



You need grid computing. It could save you millions. It could provide competitive advantage to your business. But to get it, you have to build it yourself. Why? Ask your vendors.

MOST SOFTWARE GETS HUNGRY FOR MORE PROCESSING POWER FROM TIME TO TIME, but Scott McKay's insurance actuarial application at Genworth Financial eats like a shark—it swallows hardware whole and wants more.

So in 2003, McKay tried something that few CIOs in industries outside of academia or financial services (where the need for massively parallel computing trumps all other considerations) have been willing to take a risk on until now: He adapted his custom application to work on a grid—a vast, fluid pool of processing power that splashes around in a motley assortment of spare memory from PCs and servers throughout his company. McKay's shark never runs out of food on this diet, and he now processes actuarial tables in 20 minutes instead of five hours.

McKay loves grid and the money he saves, but he also knows why most of his CIO colleagues are still feeding their sharks the old-fashioned way: Application software vendors won't let their sharks eat grid. That means CIOs who want to save millions on their infrastructures have to build grid applications themselves—no mean feat. “There are a number of issues to make grid work,” says McKay, who is CIO and senior vice president of operations for Genworth Financial.

And the primary issue is (no surprise) money.

Sacred Cash Cow

Grid blows up the traditional software licensing model, which charges customers according to the computer processor that runs the application—in other words, one application, one computer, one price. But with grid, no CPUs are dedicated to a specific application. McKay's grid application draws on a river of power that may flow across as many as 300 of his PCs in a day, but may only spend a few minutes on each. To date, vendors haven't been able—or, say some critics, willing—to figure out how to make their money with grid computing while giving users what they want—virtually unlimited CPU power without astronomical licensing costs.

“The vendors haven't come to grips with how they're going to license their software,” says Jonathan Eunice, principal analyst with IT research company Illuminata. “Software licensing remains messy and wholly unsolved.”

At this point, vendors are unwilling to relax their traditional per-CPU software licensing models to allow grid to flourish, according to a report from The 451 Group,

Reader ROI

- How grid computing changes the software-licensing model
- Why trust between vendors and CIOs is essential to grid pricing
- The tools you need to begin your own grid project



When Genworth Financial CIO **Scott McKay** wanted a grid, he had to build it himself.

a research company. "None of the vendors are doing anything material to support changes [to the software licensing model] at this time," says William Fellows, principal analyst at The 451 Group.

The landscape is further cluttered by the conflicting claims that vendors make about their grid offerings in this hot, new market, says Carl Claunch, a vice president at Gartner Research. He says grid computing has been "hijacked by the marketing folks." And even some vendors agree (about other vendors): "What all the vendors have done is to put grid under their umbrellas, [regardless of whether their solutions really qualify]," says Ken King, IBM's vice president of grid computing. "That has created hype around grid, and confusion."

Other barriers to the creation of a solid grid market include a lack of standards and the high cost of reconfiguring standard client/server applications to work on grid.

But despite all these problems, the grid buzz refuses to die, because the potential for saving money, reducing complexity (for CIOs, anyway) and lowering maintenance burdens is far too compelling. McKay says he has slashed his hardware acquisition costs, chucked excess software and provided processing times that beat any of his competitors in the insurance industry.

And when an insurance company can process its decisions faster than competitors, you're not talking IT anymore, says McKay, you're talking competitive advantage. "Grid is

one of the things that differentiates us" as a business, not simply an IT shop, he says proudly.

But vendors won't vote themselves a reduction in revenue anytime soon, says The 451 Group's Fellows, which means more CIOs will be left scratching their heads, wondering, Why not me?

The Meter Is Running Amok

For CIOs not steeped in the nuances of grid computing, cutting through the hype can seem daunting and not worth the trouble. Most of what vendors are offering is not grid. The list of grid pretenders is long, but it includes clustering, utility computing and virtualization. (See "What Grid Is—and Isn't" on Page 63 for more clarity.)

Once CIOs figure out whether a grid-computing infrastructure is right for one or more of their software applications, then they have to decide how much help is really available from vendors and how much they want to pay.

Finally, they have to be prepared to hurl themselves against the wall of software licensing. "The software-licensing model is the biggest impediment to grid computing," says Gartner Research's Claunch. "The vendors know they've got problems."

The few vendors who have tried to come up with a formula for grid pricing have ladled on the complexity, according to analysts. "If you look at the formal price sheets, it is a nightmare for the customer," Illuminata's Eunice says. "You can't easily buy software that is intelligently licensed for the kind of dynamic infrastructure in grid."

Yet, alternative licensing models have been suggested, according to Fellows—such as one that would charge for actual usage of the application, not just for the absolute number of CPUs available in the grid. But these new models require vendors to embrace new forms of metering and billing mechanisms to track customer usage by time, users per month or transaction volume. Few mechanisms exist to measure the kind of application and component usage and license tracking that grid implies, although some are being tested. Even if those applications prove to be successful, there needs to be a huge leap of faith between the vendor and customer. Cus-

tomers have to believe that they won't be charged for time they aren't using, and vendors have to believe that their customers aren't somehow sneaking CPUs or users past monitoring tools. A few big companies with big vendor clout have been able to negotiate individual pricing and monitoring models, says Illuminata's Eunice, "but for medium and small companies, it's still too early."

Fellows says that CIOs he has spoken with aren't asking their vendors to reinvent the wheel yet. They would be content with some modifications to the time-based usage models that they already have. "If their [vendor] made some incremental changes to license models, real simple things like rolling over minutes not used to a later time or not counting minutes used to review execution results," that would be a start, Fellows says. "They just want some tweaks to what they are able to do now."

Though no vendor has publicly stated its intentions to alter its pricing model for grid computing (at least not in its purest form), a few vendors have taken what Fellows terms "baby steps." SAP, for example, has been testing the open-source Globus Toolkit to grid-enable its products, which, if successful, might at least lead to pricing-model discussions. All it could take to liberate huge market share from competitors, says Fellows, would be for one powerful software vendor to simply change its model.

Certain applications that have been developed in-house have no licensing costs, such as analytic, financial calculation and electronic design automation. Those have been on early adopter companies' grids for years. But outside large corporations, analysts say there's a lack of in-house grid talent to make those in-house solutions work.

The Grid Horizon Keeps Moving

There are no explicit technical barriers to putting an application on a grid, according to Fellows. "If you really want to, you can grid-enable anything," he says. But if there is a legitimate argument to be made against a wholesale shift to grid, it is that converting existing applications requires lots of hard work, money and experienced grid developers (who are in short supply today). Unless

WHAT GRID IS—AND ISN'T

Grid computing connects storage and data, as well as CPUs from multiple systems, into a centrally managed but flexible computing environment. True grid provides distributed resource management of heterogeneous systems in which you can quickly add and subtract systems—without regard for location, operating system or normal purpose—as needs dictate.

Utility computing is one of a variety of marketing phrases (others include autonomous computing, computing-on-demand, adaptive enterprise) applied to business models that let customers retrieve computing resources as necessary. Grid is the underlying technology for all of these models.

Clustering simply refers to collections of computers in a fixed configuration designed to operate and be managed as a single, high-performance machine. Unlike grid, computers cannot enter and leave the pool as necessary—once in, they're in for good.

—T.W.

an application consumes a lot of processing power, CIOs might not see a big payback, and vendors might be left holding the bag for an expensive rewrite. The financial uncertainty surrounding software conversion costs and licensing models means that early adopters will probably pay a premium for grid-enabled applications, according to The 451 Group report, further slowing grid adoption.

So few applications have been rewritten for grid today (mostly analytical software) that CIOs are left with stark choices: Bug your software vendor; convert an existing application to grid yourself, as McKay did; or build a grid application from scratch.

Here's why converting an application to grid takes a lot of work: The essence of grid computing is the availability of computing resources from all kinds of PCs and servers inside and outside your four walls. One attribute of early grid computing applications is that one task doesn't depend on the outcome of another task. (In big, number-

crunching grid applications, for example, calculations are parsed into small, independent slices and can be added together at any time.) But many enterprise applications have dependencies—one calculation or process can't move forward until another finishes. Developers have to figure out how to divide application processing into pieces (called threads of execution) to allow those applications to be run in parallel, according to Gartner Research's Claunch. Unless the code can divide its operations across dozens, hundreds, thousands or more threads, says Claunch, it will not be able to scale its performance when given the many computing resources that grid offers. Parsing the application takes work and requires a lot more than simply tweaking existing applications; it may even require a complete rewrite.

For all those reasons, CIOs haven't yet implemented traditional enterprise applications—including ERP and CRM—on grid, because in these, each task typically depends on the outcome of others, which is not something grids are good at yet, though any application can theoretically be grid-enabled. Forcing those applications, as written, onto a grid would be similar to strapping an Atlas rocket to a Volkswagen. "Your car would melt," says Illuminata's Eunice. The core algorithms inside many of these transactional applications would also need to change.

Deeper Background on Grid

Not sure you're working on a grid? Check out the **GRID CHECKLIST**, by Ian Foster, the father of grid computing. Also, read the paper written by Foster and others that defines the **ANATOMY OF THE GRID**. Find the links online at www.cio.com/080105.

cio.com

Observers aren't optimistic about the economic incentives for vendors to rebuild their wares for grid computing. "Grid will proceed at the pace with which the software changes," says Forrester Research principal analyst Frank Gillett.

"Glaciers move faster."

Let's Pretend to Agree

Standard methods for gridding applications would help speed the glacial pace of grid acceptance by reducing the cost and complexity of the development process. Though standards bodies and alliances have emerged—such as the Global Grid Forum, Enterprise Grid Alliance and the Globus Alliance—competing grid definitions, proprietary technologies and entrenched vendor allegiances have caused them to collapse into warring factions, according to grid analysts. "Right now, we're at the end of the first [stage] where everyone's battling," says Illuminata's Eunice. "It's not the prettiest of pictures."

There are two major steps left to go before grid becomes enterprise-ready: First, the different groups must agree upon a set of standards; second, vendors need to build those standards into their products.

Fellows is not convinced the fighting will stop long enough to move beyond the first stage. "When users see more and more [standards] organizations, then users see more and more complexity," he says.

But open source may break the gridlock on grid. The Globus Toolkit (now in its fourth version) is free for anyone to use. Yet, the toolkit is limited; it's good enough to be effective at some tasks—such as analytic and electronic design automation applications—but not good enough to be effective at everything, says Eunice.

As for CIO uptake—who knows? The Globus Alliance, the nonprofit group that offers the toolkit, does little marketing and does not diligently track enterprise usage. Worse, grid skills are in short supply, which makes many CIOs unwilling to share project details, leaving neophyte gridders with no road maps to follow.

For all its early promise and economic benefits, in the end, grid computing may end up being a mirage for CIOs. They will continue to hear about how grid computing is an

GRID ON THE MARCH

1960s Distant Relatives

In 1965, the developers of an operating system called Multics (Multiplexed Information and Computing Service, an ancestor of Unix) presented a vision of "computing as a utility," which is similar to grid computing today, according to CERN's GridCafé website.

1970s The Birth of Grid

According to Grid.org, when computers were first linked by networks, the idea of harnessing unused CPU cycles was born. A few early experiments included a pair of programs called Creeper and Reaper that ran on the ARPAnet (the precursor to the Internet).

1980s Grid Refined

Scientists used grid computing to connect multiple workstations, which allowed them to work on complicated math problems and software compilations, utilizing idle CPUs to reduce processing times.

1996 Free Grid!

The Globus Alliance formed to conduct R&D for the technology, standards and systems that form the grid. Alliance members eventually produced open-source software that is central to nearly half a billion dollars' worth of international science and engineering activities.

1997 The First on the Net

Distributed.net became the first general-purpose grid-computing network on the Internet, according to Grid.org. Distributed.net eventually brought thousands of people together to crack cryptographic challenges in a distributed environment.

1999 SETI, Phone Home

The SETI@home project launched at the University of California at Berkeley. It uses Internet-connected computers in the Search for Extraterrestrial Intelligence. Anyone who has an Internet connection and some spare CPUs can participate by running a free program that analyzes radio telescope data. So far, more than 5 million people have signed up.

2001 Top This!

Launched in August by the National Science Foundation, the TeraGrid aims to build and deploy the world's largest distributed infrastructure for open scientific research by linking major supercomputing sites such as the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign and the Center for Advanced Computing Research at the California Institute of Technology. —T.W.

SOURCES: CERN's GridCafé; Grid.org; Globus Alliance; SETI@home; TeraGrid Project

idyllic solution that everyone will be using in 10 years or 20 years (which they have already been saying for 10 years). Right now, says Gartner Research's Claunch, "CIOs can't see how to get from here to there."

For the few who can, such as McKay, the view is pretty good. It's taken his IT department more than two years to get to where they

are now with grid computing, but it's been well worth it. "Our ability to execute more effectively, to achieve the business results, is huge."

Too bad most CIOs can't share those results. **CIO**

Staff Writer Thomas Wailgum can be reached at twailgum@cio.com.



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I'd *really* like to go to the *CIO* Conference



Short-term view:

I'm swamped; how can I possibly get out of here for three days? I just can't afford the time.

Long-term view:

I can't afford to miss this conference. I'll get new views on how we can meet our short-term business needs. I'll meet peers who've dealt with the same challenges. I'll get a fresh look ahead at some of the ideas and issues that could have a major impact on me and the business.

This year, at *CIO* magazine's third annual forward-looking meeting for CIOs and senior IT executives, we explore reconciling the short and long-term views in the Economy, Politics, IT Jobs and People, Law and Society, Technology, Global Sourcing, Security and the Future of IT.

KEY TOPICS WE'LL EXPLORE:

Driving the Future: Business Intelligence

For many of us, business intelligence will become a driving force, enabling organizations to truly transform how we see products, customers and processes. Why and how will BI be integral to business models going forward? Why do BI initiatives often fail?

Knowledge Management: Capturing the Past and Present

We'll continue to face a knowledge drain as we offshore higher-level work and as retiring baby boomers take veteran managers and workers out of US organizations. How big is the problem, and what should we be doing about it?

Reconciling the Short and Long-Term Goals in Transforming the Business

The state of the relationship between the CEO and the CIO is crucial. How do we get smart short and long-term thinking from both to ensure the health of the organization — especially when the business is undergoing a major transformation?

Regulatory Rundown: A Look Ahead

How are SOX, HIPAA, SEC 17A-4, Gramm-Leach-Bliley, Patriot Act and a host of other regulations currently evolving and being enforced? What else is percolating through the state and federal systems that could have a significant impact on the way we do business?

IT Spending: Is Outsourcing Losing Luster?

We've spent countless dollars on outsourcing projects — and countless hours trying to effectively manage and measure them. With rising concerns about security, loss of intellectual capital and institutional knowledge, are more companies shying away from long-term contracts and cutting shorter-term deals?

The Untied States of America?

Are several forces threatening to untie the United States, just as they are fragmenting other large countries around the world into smaller ones? What does that mean for our ability to do business here and in the global arena?

Can the US Remain Competitive in Science and Technology?

What can the US government, educational institutions and businesses do to keep us leading in an increasingly competitive global marketplace? Can CIOs and their organizations take an active role?

Why Globalization Can Work

Is the biggest obstacle to global economic progress the failure of the global market — or is it the failure of politics and governments in rich and poor countries alike?

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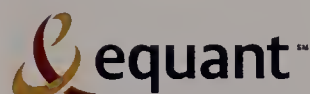
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How to Build a Business-Savvy Staff

What if you built it and no one came? Or to put the question into IT terms, what if you built it and no one used it? CIOs confront this situation every day as they try to ensure that the products they provide solve real business prob-

lems. The stars are those IT teams that have keen insight into business needs.

At a recent CIO Executive Council meeting, CIOs expressed that building business skills and knowledge is becoming the most

important element of staff development. Here are some ways they are doing that.

1] Bring the business into IT. Mary Finlay, deputy CIO at Partners HealthCare System, hires clinicians to be part of her IT staff. "Their influence is especially apparent when

we're developing systems for clinicians, where they have the firsthand experience," Finlay says. Some of the nurses and physicians on her team have an IT or health informatics background, but others have no formal IT expertise. Finlay provides them both job training and in-house project management training.

2] Go on a field trip. If you can't bring business expertise into the IT team, send the team to the business. Many companies offer job-shadowing opportunities related to specific business projects, but Lynn Caddell, senior vice president and CIO at Waste Management, thinks that one of the keys to understanding the business is to know the entire process. Waste Management offers an annual tour of the trash process, with stops at a transfer station, a landfill and the terminal where garbage trucks are garaged. She encourages her IT staff to participate so that they can see how the systems they build are used. And the knowledge they



MARY FINLAY,
Partners HealthCare
System



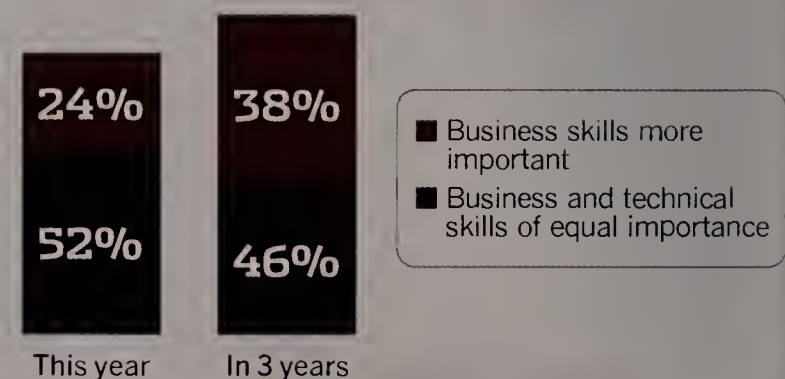
LYNN CADDELL, Waste Management

gain helps staff in another way: "During the visits, participants should be anticipating future enhancements in the process. This way, they can build future capabilities into the technology design on their end," says Caddell.

FINDINGS

Business Skills are becoming more important than **Technical Skills** for senior IT management hires.

A recent CIO Executive Council survey shows that by 2008 IT executives will place an even greater emphasis on business skills when hiring senior technologists.



SOURCE: CIO "Executive Council Staffing Survey," 2005

➤ HELPFUL HINTS

HOW TO INFLUENCE THE NEXT GENERATION

3] Hang out with successful business peers. Gerry McCartney, assistant dean of technology at Purdue University's Krannert School of Management, encourages his high-potential IT staff to "find the best marketers, the best salespeople, and spend time with them. These relationships will help keep you abreast of what's happening on the business side and will provide solid internal networking opportunities." He gives this same advice to business school faculty as well. McCartney finds that his top IT performers take advantage of the school's knowledge base and schedule private meetings with their business partners to discuss ongoing projects. In doing so, they gain valuable business skills and improve their performance.

4] Promote your relationship with the business. Partners' Finlay uses departmental communication to not only inform her team of ongoing business projects but also to highlight the importance of IT to the business. In a recent IT newsletter, clinicians on the business side shared their thoughts about what IT means in their daily work. These testimonials from senior business executives effectively publicize how the business is using IT to improve patient services and business processes. And, according to a February 2005 CIO survey of 98 IT executives, the best way to improve the business perception of IT's value is for business sponsors and users to communicate that value themselves (see "Turning IT Doubters into True Believers," June 1).

—Carrie Mathews, Member Services Manager, CIO Executive Council

While many CIOs would prefer that academic institutions shoulder more of the burden of inculcating business skills in newly minted IT workers, those same CIOs and their companies must be willing to play an active role in influencing and guiding the education of their future IT staffs.

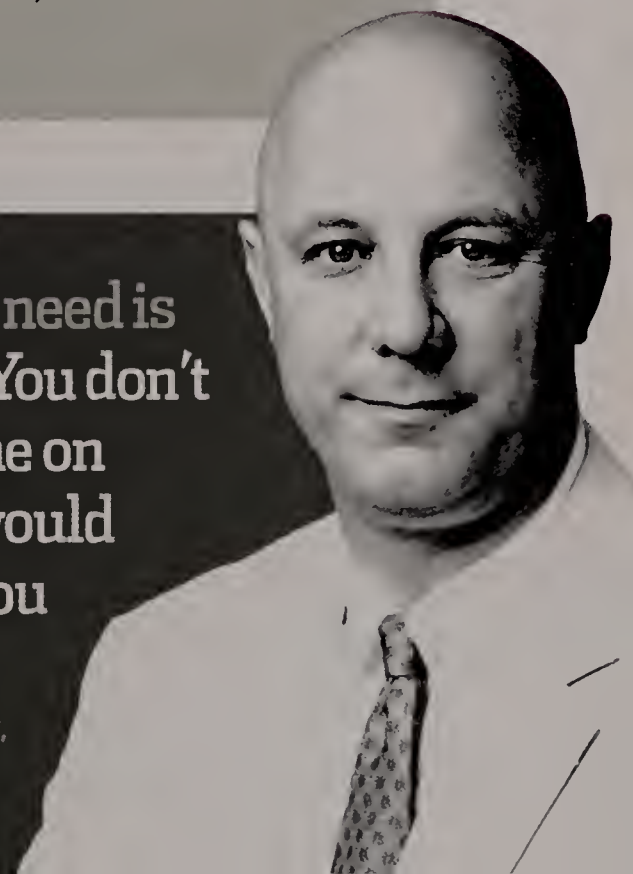
John Sargent, senior technology policy analyst with the U.S. Department of Commerce, recently met with a group of CIO Executive Council members to brief them on how the government views the supply and demand of IT workers, and offered some helpful hints on how employers can get involved right now.

- Participate in employer surveys about skills and the IT labor market.
- Encourage your IT staff to serve as part-time faculty at universities and continuing-education programs.
- Participate in university advisory boards and committees.
- Participate in workforce investment boards.
- Participate in cooperative work-study programs (to develop long-term relationships with students and shape their education).
- Sponsor summer work, internships, and employment sabbaticals for college faculty.
- Work with other national-level associations on IT skills efforts.
- Sponsor rotation and exchange programs for industry IT scientists, engineers and university faculty.
- Encourage partnerships between company IT professionals and faculty counterparts.
- Lend knowledge and advice for technical curriculum development (make company technical professionals available to schools for this purpose and to serve as ongoing source of expertise and advice).

ONE LINER

"Understanding the business need is the key to being successful. You don't want to be spending your time on projects for which the CEO would ask, 'Now, why exactly are you working on this?'"

—GERRY MCCARTNEY, ASSISTANT DEAN OF TECHNOLOGY,
KRANNERT SCHOOL OF MANAGEMENT, PURDUE UNIVERSITY



[EXHIBIT A]

Create an IT Leadership Program

Senior leadership at Southern Company devotes two years of training to members of the IT staff

Although general leadership-training programs already existed at utility giant Southern Company, R. Bart Wood, CIO of Southern's Georgia Power operating unit, and other members of the Southern senior leadership team recognized that they needed to provide IT staffers with opportunities to focus purely on technology leadership. In spring 2004, they launched a 24-month IT leadership program.

The selection committee, consisting of the corporate CIO, the executive sponsor of the training program, the vice president of IT, a representative from HR and an employee with experience in leadership development, selected 25 participants after reviewing a group of candidates nominated by senior IT leaders, attempting to represent as many of Southern's operating companies, geographies and functional areas as possible. A unique aspect of the program is that

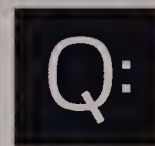
one of its openings is designated for a non-IT staffer who has expressed an interest in IT. "It's a great chance to see if the staff member would be a good fit for the department full-time," Wood says.

Classes meet one or two days a month and are taught by both internal and external experts. As the group enters the second year, participants will shift from classroom-based learning to group projects and mentoring by senior IT leaders. Wood takes on six of the 25 participants for group mentoring once a month.

"I have no doubt that the level of exposure they receive in terms of the classes and small-group projects helps to better prepare participants to be more competitive and ultimately successful," he says.

Although it's too early to measure benefits in terms of promotions, the management team has already seen an improvement in communication skills and increased idea-sharing and networking among the group. In spring 2006, the program will welcome its second set of participants.

PEER COUNSEL



How are you improving the skills of your management staff?



A:

JIM BURDISS,
Vice President and CIO,
Smurfit-Stone Container

Just as sports stars use specialized coaching to improve themselves, I recognized the need to take both my skills and

my team's skills to a more strategic level. I wanted the leadership team and other IT management teams to take more initiative to communicate, work together across functional lines and partner with business units effectively to benefit the entire enterprise.

We wanted to become a key change agent within Smurfit-Stone. We realized that given the company's emphasis on leadership development, there were always new things to learn and implement in our daily work lives. Similar to a manufacturing environment, the theme of "continuous improvement" was one that we embraced at the senior level.

As a result, I retained an executive coach to help us develop these skills. As part of this process, we first assessed our behavior, acknowledged what we wanted to do individually and for our team, developed action plans and executed the plans. The first participants with the executive coach were myself and executives at the senior vice president and director level.

Our 34 IT managers made up the second group of participants. We are currently evaluating the effectiveness of the executive coach by measuring things such as employee satisfaction and employee turnover and also by comparing the percentage of professional objectives that were met by employees prior to having the coach and then after participating in the program. These objectives include daily responsibilities like process improvements, cost-cutting measures and creating new programs.

We expect these measures to show a definite leap in our personal and team effectiveness.

SOUTHERN'S COURSE CURRICULUM

YEAR 1

- **Career development workshop:** Identify personal skills
- **Southern Company leadership profile:** Discuss corporate expectations for leaders
- **Outclass the competition:** Image and professional etiquette training
- **Stand and deliver:** Advanced presentation skills
- **Communicating persuasively for IT professionals:** Skills to communicate technical information
- **Building support networks:** How to build professional networks
- **Individual development plans:** Create and discuss career progression

YEAR 2

- **Group mentoring:** Members of the senior leadership team meet on a regular basis with a small group of participants to expose them to different areas of the company
- **Group projects:** Participants meet in small groups to work on specific projects



The CIO Executive Council is a professional organization for CIOs founded by CIO's publisher. To learn more about the Council, visit www.cioexecutivecouncil.com or contact Director of Program Development David Lien at dlien@cio.com or 508 935-4493.

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Bricklayers or Architects?

The inadequate math and science education of America's youth is a serious workplace issue



"Reasonable people adapt themselves to the world. Unreasonable people attempt to adapt the world to themselves." —George Bernard Shaw

I used that quote to close a speech to the Boston chapter of the Society for Information Management, where I laid out a reasonable course of action that our country needs to adopt to produce a workforce skilled in science, technology, engineering and math. Here are some points I made.

Teacher preparation for K-12 science and math is woefully inadequate. For instance, 82 percent of middle school science and math teachers—and 42 percent of high school science and math teachers—do not have undergraduate degrees in those subject areas. Maybe that's why American students rank at or near the bottom in math and science in academic comparisons with other developed countries.

American business leaders should consider lending their best and brightest tech staffers to one-year assignments in K-12 classrooms to bolster the current teacher base. The program could be part of a nonprofit I founded in 1994 called Tech Corps (www.techcorps.org). CEOs need to realize that workforce development is a business issue, not just an education issue.

And the global economic clock is ticking. For the book *The World Is Flat*, author Tom Friedman interviewed a Chinese mayor who told him that for now, the Chinese are comfortable being the bricklayers of the global economy while Americans are the architects. In the future, however, he told Friedman, the Chinese plan to be the architects.

With China graduating almost 220,000 science, technology, engineering and math undergraduates every year to America's 59,500, that Chinese mayor's observation could become a reality in the next decade or two.

Are we destined to become a nation of bricklayers? Send me your ideas on how we should build a better future for America. I will share them in a future column.

Gary J. Beach

Gary Beach, Publisher
gbeach@cio.com

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Norm Fjeldheim, CIO of Qualcomm, had to reorganize his company's supply chain to meet a jump in chip demand.

38 | COVER STORY THE PERFECT ORDER

TO ACHIEVE THE Holy Grail of high order fulfillment, companies have to restructure their supply chain processes from end to end. Supply chain leaders such as Qualcomm and West Marine are already building systems that connect them in real-time to both suppliers and customers so that they can obtain a clear forecast of customer demand. Such enterprises also sharpen demand visibility through constant collaboration between supply chain leaders and the sales and marketing departments. Because CIOs know what information technology is capable of, they are in a good position to help generate these supply chain improvements. *By Susannah Patton*

60 | GRID HELD HOSTAGE

YOU NEED GRID computing. It could be saving you millions. It could provide competitive advantage to your business. But to get it, you have to build it yourself. Why? Grid blows up the traditional software licensing model, which charges customers according to the computer processor that runs the application—in other words, one application, one computer, one price. But with grid, no CPUs are dedicated to a specific application and to date, vendors haven't been able—or, say some critics, willing—to figure out how to charge for grid while giving customers what they want: virtually unlimited CPU power without astronomical licensing costs. Consequently, widely available enterprise-ready grid remains a hope, not a reality.

By Thomas Wailgum

54 | RULES OF THE ROAD FOR TURNAROUND CIOs

TURNAROUND CIOs ARE in demand for three different roles: firefighters for businesses beset with numerous problems; drill sergeants for out-of-order IT departments; and guides for organizations embarking on a transformation. As many as half of the companies in the market for a CIO right now need the turnaround variety. While the turnaround IT methodology isn't carved in stone, there is a common set of practices that these CIOs employ. CIOs from OfficeMax, Tyco International, CKE Restaurants and other companies share their experiences and lessons. Bottom line: Turnarounds are about performance, speed and change.

By Allan Holmes

46 | THE ADVANTAGES OF WORKING DANGEROUSLY

YEARS OF BUDGET CUTS and still-painful scars from the overheated tech buying spree of the '90s have left many companies nervous about being early adopters. Being first in line for products based on cutting-edge technology is even more hair-raising when you're holding hands with a startup vendor. But a few braver than average companies are taking chances and making them pay. The reasons they assume the risk vary from chasing competitive advantage through unique technologies to achieving cost reductions by dealing with hungry vendors. But in all cases risk mitigation is paramount; the companies we profile here have all utilized some of the following techniques: rigorously evaluating the technology, equally rigorously vetting the vendor, applying scope limits to projects and preparing the company for adoption. *By Christopher Lindquist*

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